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EDITORIAL.

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CHOLESTEATOMAS.—The study of these tumors has been the subject of a paper presented at the Association for the Study of Cancer, of which I find in the *Presse Medicale* an interesting résumé. The paper was due to Dr. Roussy, who presented a very documented series of facts, expressed as follows:

A. *Actual Conception of Cholesteatomas.*—This name was given for the first time by Muller to encapsuled pluristratified malformations, containing concentric shining masses, rich in cholesterine.

Because of these concentric masses, Cruveillhier designated these tumors by the name of "pearled tumors."

They are observed on the level of the meninges, rarely in man, very commonly in horses—near the middle ear; in some glandular organs (mammae, testicles, ovaries, uterus); in the urinary apparatus (pelvis of the kidneys, bladder, urthra); near the skin, and finally in bones, particularly those of the cranium, whether the tumor presented or not colloid degeneration, calcareous infiltration or was or not the seat of hemorrhages.

The microscopic aspect varies. The only constant fact is the presence of cholesterine, which always gives the tumor a yellowish coloration, some hardness and has a shining aspect on its sections.

The nature of the histogenesis of cholesteatomas according to

the description of classical authors appears complex. Most of them agree in distinguishing them as:

1. *False cholesteatomas,* which include, on one side, those of the middle ear, of the nose, those of the urinary tracts; they are inflammatory tumors secondary to chronic suppurations, and remarkable by the accumulation of cholesterine in their thickness, but without any neoplastic character.

And, again, the cholesteatomas of the skin which are congenital malformations, much like epidermoid cysts from which they differ only by the rich presence of cholesterine in the degenerated epidermic products:

2. *The true cholesteatomas,* which have for type that of the meninges, and which form a peculiar class of neoplasms with special histogenesis.

Virchow, Billroth, Rindfleisch, French authors, consider these tumors as arachnoid endotheliomas, and Klebs goes so far as to say that cholesteatoma of meninges is the purest form of endothelioma.

On the contrary, Baratrom, Borsi and their followers consider the meningeal cholesteatomas nearly as those of the skin and make also of them congenital malformations comparable to epidermoid cysts.

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Dr. Roussy then relates his personal investigations. Based on the complete histological study of more than twenty cases of cholesteatomas of meninges of horses, of one case in man and one in the mammae of a woman, these investigations have brought him to conclusions which simplify very much the difficult question of the pathogeny of those tumors.

The study of series of sections of meningeal cholesteatomas of horses shows that they are not neoplasms, but chronic inflammatory lesions of the choroid plexuses, and in some cases manifestly of tuberculosis.

The study of the cholesteatomy of a breast shows that it was a fibro-adenoma. That which, in all these cases, forms the pe-

culiarity of structure of these tumors, is the accumulation of cholesterine, whose crystals are easily studied to the polarimetrum with frozen sections and which, after dissolution, with sections closed in paraffine, which defines their geometric outside lines.

It is an error to divide cholesteatomas into true and false. They are all false in the meaning given them by classics, viz.: that the tumors described under that name have no peculiar histological origin. What groups cholesteatomas is not a common histogenesis but a common degeneration.

This same can be still applied to tumefactions which are some nodules of ordinary inflammation, others tuberculosis, some teratomas, others neoplasms. But it must be well understood that because these various tumefactions have a same name which indicates a same degeneration, they must not be considered as belonging to the same nosological group; no more than could be put in a same classification the fatty tuberculous liver and the hypernephrosis, because in the neoplastic kidney as in the degenerated liver there is fat, which in both cases gives the tissues a yellow coloration, soiling paper and taking an intense tint by some special reacting agents.

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LIPOIDS.—Since the wonderful works in which Brown Sequard recommended in cases of weakness, debility and asthenia the injection of organs' extracts, a vast science has developed which is, so to speak, the inheritance of the ideas of that great scientist. Actually there are extracts of organs which are extensively used in therapeutics. The opotherapic indication has made its way in general practice. The mode of action of those extracts has been the object of careful investigations and it is known that they act as to take the place of organs whose functions have become insufficient. Their action is in general due to a substance which has some of the properties of fats and on that account have received the name of lipoids.

Among the many workers who have investigated and made a special study of lipoids Dr. Iscovesco is one, and at the last medical congress he presented the final results he had obtained with his researches and specially demonstrated that lipoids have for special action the stimulation of the functions of a given organ.

He has taken one of these lipoids, isolated from a special organ, injected it into rabbits for a certain length of time, and after two months observed that the organ from which the lipoid came had increased in size and in weight. In other words, each organ contains a lipoid which, thrown in the circulatory system, goes and surexcites the organ from which it has been taken.

Carried further, the observations of Dr. Iscovesco have shown that this tonic lipoid, homo-stimulating, has also a general action necessary to the organism. Women submitted to double ovariotomy are also relieved of all the troubles that they were otherwise having.

And again experiments have shown that the red corpuscles of the blood also contain a lipoid, which, injected into an animal which has been bled or has anemia, the lipoid stimulates the formation of red corpuscles.

From general conclusions, Dr. Iscovesco says in the *Presse Medicale* that there are a number of diseases whose morbid condition depends from the bad functions of one organ, and that by the discoveries which have been made of the lipoids, of their physiological functions and their therapeutic actions, with the proper application of opotherapy, the treatment of these diseases is now altogether indicated.

The pathology of small animals can derive advantages by borrowing from the literature on this subject in human medicine.

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INFLAMMATORY TUBERCULOSIS.—Under that name is understood that tuberculosis which, deprived of all anatomical specificity, leaves lesions which are not characterized by the presence of visible tubercules, or even of the microscopic follicles, which

represent the initial stage of their formation and in which the tuberculous poisons determine far and in most varied organs ordinary inflammatory reactions, often attributed to some other cause.

This is an important question which interests the medical world and upon which an excellent book has just been written by Professors Poncet and Lebiche. The subject has a double importance; first, because no one can remain disinterested to any new doctrines relative to the pathogeny and unsuspected mischiefs of tuberculosis, but also because comparative pathology can enlighten by this present new conception of specific tuberculosis some of its yet remaining obscure problems. Indeed, says one of our best veterinary pathologists in reviewing the work on inflammatory tuberculosis, there might be great advantage to take hold again of the entire veterinary pathology to bring the subject up to the new conception.

In a recent article Professor Cadiot, in studying a certain number of osteo-arthropathy of tuberculous origin in the dog, has drawn the attention to the originality and the attraction of this new theory. Veterinarians would no doubt derive benefit by the reading of this new work, where they would find a complete exposure of the doctrine, where they will be shown how the entire organism can be injured by the tuberculous toxines that the circulatory system carries all over.

A peculiar fact, very persuasive by itself, is that experimentors and histologists having shown the possibility of the existence of lesions free from tubercles or of tuberculous follicles and yet being produced by the toxines or the bacilli themselves, can it not be admissible to consider as tuberculous many alterations which are observed during the life or after the death of a patient, carrier of occult tuberculous centers or even only suspicion of having them.

This is what Professors Poncet and Leriche have done in attributing a tuberculous origin to osteo-arthropathic lesions of horses, such as ankylosis, exostosis, spavins, etc. A theory which certainly can be refuted by many powerful objections. The ob-

servations of facts gathered from man, relating to possible inflammatory tuberculosis of the osseous and fibrous systems, of joints and tendinous synovial, may have an apparent or real resemblance to the lesions of the apparatus of locomotion of horses, but that is all. To go further is certainly an overstretched conclusion.

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ARSENICO-MERCURIAL MEDICATION IN VETERINARY THERAPEUTICS.—This has been the subject of a valuable work by a Mr. Boulin, veterinarian, and which has been the subject of a very interesting report presented at the Societe Centrale de Medecine Veterinaire in Paris. The author has made experiments, which proved most successful, against three serious diseases, the hemorrhagic septicaemia of sheep, the infectious typho-anemia of horses and the septicemic polyarthritis of new-born equines. The results that were obtained by the use of those mercurial and arsenical compounds and which are minutely analyzed and recorded are deserving of great attention, the statistics of the discoveries speaking for themselves.

The method resorted to by Mr. Boulin consists in intramuscular injections of benzoate of mercury and disodical methylarseniate in the following proportions: equal part of the benzoate, chemically pure, and of methylarsinate, 1 gramm, in 100 gramms of dissolving serum. One cubic centimeter of this solution contains 1 centigram of each salt. It is necessary to have the solution prepared in ampoules sterilized, at a temperature close to zero. As there will be a precipitate, the ampoule to redissolve the salts will be dipped for a few minutes in warm water. If the salts used are pure, the conservation will last indefinitely. The injections have to be made with all antiseptic precautions.

The lateral face of the neck is the place to make the injection in horses and cattle. The needle of an ordinary Pravaz syringe is thrust perpendicularly at about a depth of 3 centimeters and drawn away rapidly after the injection is made. So as to avoid the contact of the liquid with the connective tisue, the piston of

the syringe shall be raised a few millimeters to empty it thoroughly. Small colts will be operated on while down, sheep while standing. In this last animal the internal face of the thigh, near the posterior border, is the place for injection.

The doses have been carefully experimented. For large animals, horses and cattle, 40 cubic centimeters of the solution; in very severe attacks only the injection is repeated the next day; afterwards they are of 20 centimeters and renewed according to the severity and progress of the disease every three or four days. This last dose can also be used as a preventive. For poly-arthritic colt, even when only a few hours old, an injection of 20 c.c. has been used from the start. This same dose injected into the mother will grant immunity to the milk. In sheep affected with hemorrhagic septicaemia, the curative doses are of 10 cubic centimeters and the preventive of 5 repeated at even intervals, three times in fifteen days.

The stated results mentioned by Mr. Boulin are valuable evidences of the good results obtained by this treatment, which certainly justify trials.

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NEW CESTODA OF SHEEP.—Under this heading Adjunct Professor Marotel has called the attention of the Societe des Sciences Veterinaires de Lyon to his mode of studying cestodœ and to a new parasite of sheep that he has discovered. The method is simple. Spread the worm on glass slide after its being colored in mass with borated carmine. In a few minutes and without any other preparation one can be documented upon the form, dimensions, structure of the helminth and *all of its* annexes.

Since a number of years Marotel has applied this method, principally with the cestodes of sheep. These worms, which belong to about ten species, are described in classical works by their character of external morphology, characters which vary considerably, according to whether the worm is dead, extended or contracted. For these reasons the dimensions varying, the classification may be contradictory and without positive determination,

and Marotel has decided to resort for base of a classification to characters more fixed and certain, the *anatomical* or *structural*, which are more rapidly exhibited and observed by his method than than the morphological.

In working up this new classification, which will be published when completed, Marotel has discovered a new species which he describes as follows: "The normal worm (without excessive extension or contraction, and completely developed) measures between 2 meters and 2 meters and a half in length, with 3 to 5 millimeters *maxima* width; it is then relatively short and specially narrow, hence the name of *minima* proposed for it. The head is followed by a long neck. A chain of two meters consists of about 1,850 rectangular rings, with their posterior angles, little developed. The interannular glands are enormous, three times larger than the testicles, in small number and arranged in transversal line, not occupying the entire intralacunar space. The *hermaphrodite zona* has approximately 400 rings, which are relatively elongated. The first ones are wider than long. The last ones are square.

"The genital pores are open slightly in front of the middle, in a notch situated on the summit of a round projection (not a sexual nipple). *The testicles not numerous* (150 about), form a rectangular surface which scarcely fills up the *posterior third* of the ring; sometimes this rectangular surface is very thin on the median line. Germigene and vitellogene well developed and apparent. Ovigerous rings from the 180th—200th centimeters, with genital pores on the anterior third."

These are the essential characters of this new cestodœ which has close characters to those of the *Maniezia expansa* and *trigonophora*, with which it may have been mistaken to this date.

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BIBLIOGRAPHY.

RABIES.—I have received from the publishing house of J. B. Bailliere & fils a new work on *Rabies* by Prof. V. Babes, the emi-

nent director of the Institute of Pathology and Bacteriology of Bucarest.

There are probably few subjects of medicine which have a more abundant literature and yet in the presence of the valuable works and progress that has been realized and also of the present knowledge that is possessed, the publication of such *Treatise on Rabies* had become necessary.

Thanks to the existence of numerous antirabic institutes it is known to-day that rabies is much more prevailing and on a wider extent than was supposed years back. At the present time there are some hundreds of those institutions which among their work give out much information relating to rabies which is of very great value. And yet there is no specific work except the German work of Hoggis which gives all the facts now realized by science.

Babes has endeavored to produce one and has well succeeded. In the *Treatise on Rabies* he has given a large space to the experimental study of the disease, has treated in detail of the history of that fearful affection, one among the virulent diseases which is that whose history is most interesting, and considered the subject in all its various points of view.

We cannot give this good work the thorough review that it deserves. It could not do justice to its contents. The legislation, the sanitary medicine, the clinical history, the pathological anatomy * * * all are the object of most interesting consideration, without saying anything of the personal researches of the author and of the critics which he makes of the most recent investigations, and discoveries upon the etiology of rabies and the indicated changes in the preventive.

The work of Babes forms one volume of 677 pages with 11 illustrations. The contents are presented to the reader in 36 chapters—among which we will call specially the attention of veterinarians to Chapter V, treating of rabies from the point of view of general practice, the conduct indicated for a practitioner, physician or veterinarian, or a person that has been bitten; Chapter VIII, symptomatology of rabies in the principal biting animals, dogs, wolves, cats, horses, ruminants, pigs; Chapter XXXIV, the anti-

rabic treatment in animals: vaccination of dogs and vaccination of herbivora. Every chapter is very interesting, but those three, we believe, call principally the attention of the daily practitioner.

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BIBLIOGRAPHIC ACKNOWLEDGMENTS.—*Archives des Sciences Biologiques* (Archives of Biological Sciences), published by the Imperial Institute of Experimental Medicine at St. Petersburg, Vol. XVII, No. 3.

Program of the 16th Annual Meeting of the United States Live Stock Sanitary Association. A special notice of which will be given as soon as the Proceedings are published.

The *Introduction and Spread of the Cattle Tick* and of the associated disease, tick fever, in Australia, by J. A. Gilruth, D.V.S., M.R.C.V.S.

Further Observations on Onchocerca Gibsoni, the cause of worm nodules in cattle, by J. A. Gilruth and Georgina Sweet, D.Sc.

The *Score-card* system of dairy inspection by George M. Whitaker, of the Bureau of Animal Industry.

The November number of the *Agricultural Journal* of the Union of South Africa, with an article on Afrikander Cattle, of good interest from the zootechnician point of view. The souvenir program of the 30th annual meeting of the Illinois State Veterinary Medical Association, which took place last December, and where Dr. J. H. Mohler, Dr. W. J. Martin, Dr. J. M. Wright, Dr. H. Crawford, Prof. Dalrymple, Dr. A. T. Peters, Prof. E. L. Quitman, Prof. White, Dr. Arthur Hughes, Dr. G. B. Jones, Prof. B. F. Kaupp presented papers of great interest. Program gives a list of the officers since the organization in 1883, and also that of its active members, some two hundred and fifty in number.

Bureau of Animal Industry, Bulletin 152: *Studies on the Biology of the Texas Fever Tick,* by H. W. Graybill, D.V.M., and W. M. Lewallen.

Bulletin 153: *The Action of Anthelmintics on Parasites Located Outside of the Alimentary Canal,* by Brayton Howard Ransom and Maurice C. Hall.

The *Lawrence Telegram,* from Dr. John F. Winchester.

A. L.

PRESENT STATUS OF ARMY VETERINARY BILL.

At this writing (February 24) the *Army Veterinary Bill* stands on the brink of success! And yet, the outcome cannot be predicted with any degree of certainty. Chairman Hoskins of the Legislative Committee, President Mohler of the A. V. M. A., and other members of the legislative committee have been strenuously at work in Washington during the past few days, with the result that they have secured a promise from the sub-committee on military affairs that they will bring the bill for action before the Senate Military Committee on February 27; and while the final battle of the campaign is being waged, the whole veterinary profession of America anxiously, yet confidently awaits the outcome. And should success crown their efforts, it will be the result of one of the fairest, hardest fought, non-partizan battles for a cause that has ever been waged in this or any other country. *Espérons-le.*

[ADDENDUM FEBRUARY 28TH.] ARMY VETERINARY BILL DEFEATED—CAMPAIGN FOR RECOGNITION IN THE 62D CONGRESS LOST.—This last week has been devoted to a special appeal to the members of the Senate Military Committee and a summonsing to Washington of representatives of the profession from New Jersey, Virginia, Pennsylvania, and the filing of appeals from military officers in the states, urging this recognition; but all to no purpose. Nothing could move the chairman of the sub-committee, Senator Bristow, to a report. But that indefatigable worker, Chairman Hoskins, courageously announces that "we must now *begin anew* our battle with the 63d Congress, and every veterinarian must at once make the close acquaintance of his Congressman, and familiarize him with the justice of our cause, and early secure his co-operation in behalf of the same." The profession appreciates Dr. Hoskins' valiant services, and are a unit in supporting his renewed efforts for the cause.

ORIGINAL ARTICLES.

KNUCKLING AS A SYMPTOM OF SPAVIN.*

By James McDonough, D.V.S., Montclair, N. J.

I deem it a great honor to be allowed to address this body of veterinarians, for I am conscious of my inability to say anything upon any subject pertaining to veterinary science that can add to the knowledge of any man present. The only excuse I can offer in the form of an apology is my irresistible desire to place before you, for your consideration, a subject that has occupied my attention for the past ten years or more, the title of which is "Knuckling of the Hind-Limbs as a Symptom of Spavin."

Knuckling is a voluntary disarrangement of the bones at the ankle that can be reduced at will by the animal. Where we have present conditions that we know cause knuckling, it is very evident that the changes in the relation of the bones of the ankle are the result of the animal's effort to relieve the parts affected. As in a punctured wound of the foot, when the location of the wound is in the region of the heel, the ankle will immediately be thrown forward that the work may be lessened at the point of injury, so it is in the case of sprained tendons, or any other exciting cause found below the hock. But in all of these cases, where the cause is evident, the location can easily be determined by the presence of heat, soreness or swelling, and when the soreness has been relieved the knuckling will disappear.

This applies to a very small percentage of knuckled animals, for in most cases the cause is obscure, and there is not the slightest evidence of heat, pain or swelling, nor is lameness present

* Presented to the American Veterinary Medical Association, at Indianapolis, August, 1912.

oftentimes for years after a horse goes knuckled, and sometimes never.

It will oftentimes show itself first in one limb and then the other, or it may be confined to one limb, or may appear in both at nearly the same time, as often seen in young horses, say at the age of from two to five years. In these cases its development is very gradual; the first symptom detected is a very slight displacement of the ankle, when the foot first comes in contact with the ground, to disappear when the limb takes weight. This will be followed by an interrupted condition of knuckling while at rest, when the animal will be seen to stand knuckled for a minute or longer at intervals.

This condition is apt to progress, and the animal may begin to stumble or "break over" behind. He may or may not show lameness, but at this time I challenge the skill of any person to detect the presence of a condition that can in any imaginary way be responsible for these changes, but here are effects, and a cause must be present, and our inability to find it must not be accepted by us as proof that it does not exist.

I will here quote the remarks of Prof. Liautard as they appear in the book on the disease of the horse issued by the Department of Agriculture. I do this for the reason that the causes and treatment, as given by Prof. Liautard are, so far as I know, accepted by all horse owners and veterinarians and taught by veterinary colleges. Prof. Liautard writes as follows: "As a consequence of the last-mentioned lesions of the tendons a new condition presents itself in the articular disposition, constituting the deformity known as the knuckling fetlock.

"By this is meant a deformity of the fetlock joint, by which the natural angle is changed from that which pertains to the healthy articulation. The first pastern or suffraginis loses its oblique direction and assumes another, which varies from the upright to the oblique, from before backwards, and from above downwards; in other words, forming an angle with its apex in front.

"*Cause*—This condition, as we have seen, may be the result

of chronic disease producing structural changes in the tendons, and it may also occur as the result of other affections or some peculiarity independent of this and situated below the fetlock, such as ringbone, sidebone or traumatic disease of the foot proper. Animals are sometimes predisposed to knuckling, such, for example, as are naturally straight in their pasterns, or animals which are compelled to labor when too young. The hindlegs are more predisposed than the fore to this deformity, in consequence of the greater amount of labor they are required to perform as the propelling levers of the body.

"*Symptoms*—The symptoms of knuckling are easily recognized. The changes in the direction of the bones vary more or less with the degree of the lesions. Sometimes assuming such a direction that it almost becomes a true dislocation of the pastern.

"The effect of knuckling upon the gait also varies according to the degree of the deformity. As the different degrees of the shortening of the leg affect the motion of the fetlock, the lameness may be very slight or quite extreme. Another consequence of this shortening is such a change in the position of the foot that the heel ceases to come in contact with the ground and assumes a greater elevation, and the final results of this is soon witnessed in the development of a club foot.

"*Treatment*—To whatever cause the knuckling may be ascribed, it is always a severe infirmity, and there is but little room for hoping to overcome it, unless it be during the very first stages of the trouble, and the hope dwindles to still smaller dimensions, when it is secondary to other diseases below the fetlock. If it is caused by overworking, the animal's first indication will, of course, be rest. Line firing has proved very efficacious in these cases. The animal must be turned loose and left unemployed. Careful attention should be given to the condition of his feet and to the manner of shoeing, while time is allowed for the tendons to become restored to their normal state, and the irritation caused by excessive stretching has subsided. A shoe with a thick heel will contribute to this. But if no im-

provement can be obtained and the tendons, though retracted, have yet been relieved of much of their thickening, the case is not a desperate one and may yet be benefited by the operation of Tenotomy—single or double—an operation expedient which must be committed to the experienced surgeon for its performance."

From the above quotation it will be seen that the cause of knuckling is always attributed to some condition below the hock, and treatment always applied to that part of the limb with acknowledged poor results.

That my position may be more easily understood I will divide knuckling into two classes: The one that is caused by an injury below the hock, when the seat of injury can always be detected, and lameness is usually present, to disappear when the condition has been relieved; the other, which develops where lameness is seldom present early enough in its development to cause us to suspect the one of being associated with the other.

Of the first class, which constitutes probably about 5 per cent. of all cases of knuckling behind, I have already referred to. Its cause can be easily detected and usually treated with success. Of the remaining 95 per cent. I think we have much to learn.

If we hope to relieve knuckling, we must do so in its incipient stage, and in order to do this, we must know its early cause.

As I said before, knuckling is a voluntary act; the change in the relation of those bones is made for the express purpose of relieving some part of the limb of its work, for we know that we cannot change the relation of any parts of the limb without causing a transfer of work from one part to the other. If the degree of knuckling increases, it signifies that a greater change in the relation of the parts is necessary that more relief may be extended to the affected part. And where lameness is present, it can be accepted as proof that the relief so extended is not sufficient to permit the affected part to perform its work with comfort.

That this is true is shown in the condition of spavin. When we have a lame horse and suspect a spavin as the cause, we look for certain symptoms and conditions that exist below the hock, and when found to exist, they always strengthen our diagnosis. The symptoms consist of the animal starting off slightly on the toe, with the weight inclined in that direction and a limited flexion of the limb at the hock. The conditions that we would expect to find would be knuckling of the ankle, an increased growth of the hoof at the heel, and, if of long standing, a very pronounced thickening of the tendons, but no heat, swelling or soreness can be detected. In cases of lameness we look upon these as symptoms of spavin, but they are the very same conditions found and described by Prof. Liautard as caused by knuckling. He refers to the change in the direction of the weight through the foot, for he says we have an increased growth of the heel. He says this growth may continue until we have what is known as a club foot, when the weight will pass through the toe in a vertical direction. He refers to the shortening of the flexer tendons and recommends tenotomy as a possible means of relief, but we, as well as he, look upon them as conditions caused by knuckling when lameness is absent, while when lameness is present we consider them symptoms of hock trouble. In the one case we look upon the conditions as a cause, while in the case of spavin, as an effect, to the extent of allowing their presence to strengthen our diagnosis.

There is probably nothing more difficult for us than to discriminate between cause and effect, for many conditions that at first are effects later become causes.

As a cause must precede the effect, it is hard to understand how thickened tendons and high heels can be considered as a cause of knuckling, when knuckling always precedes these conditions. As a matter of fact we see many horses that have been knuckled for years with normal heels and tendons. If this be true, then it is hard to understand how we can expect to relieve knuckling by lowering the heels or cutting the tendons.

When the conditions, referred to above, are present, they

will be seen to increase as the knuckling increases This would lead us to believe that one must be the cause and the other the effect; so if we exclude the high heels, etc., as a cause, we must look upon them as an effect, and accept the knuckling as the cause. For this reason we treat the ankle by blistering, firing, etc., but never with beneficial results.

No. 1.

These animals may continue sound and serviceable for years or may never take a lame step. Again, they may come from the stable some morning too lame to be put to work, as shown in the acompanying cut No 1. This animal had been used in a coal yard for the past seven years under my personal observation and care and had never gone lame. One Monday morning, after playing in the yard the day before, he was found too lame to be put to work, hardly taking any weight on one hind-limb. I had some liniment applied to the hock and allowed him to rest for a week, when he again traveled sound. But had this animal

continued lame for a month or more, there is no veterinarian who would not pronounce him lame in the hock. To confirm our diagnosis, we would point to the high heels and other conditions referred to in cases of knuckling and recognized by vetrinarians and many horsemen, as symptoms of hock joint lameness. The only condition never referred to and always present in those cases, as a symptom of spavin, is the knuckling. But why ignore the knuckling at this time? We haven't accounted for its presence; we haven't as yet determined whether it be a cause or an effect. We have admitted that it is not the effect of any of the conditions found below the hock, for it always precedes them; we cannot claim that it is the cause of these conditions, for we now acknowledge them to be well-recognized symptoms of a spavin.

If we have a cause, that cause can only be determined by its effect, and having acknowledged our failure to relieve knuckling by the treatment of any or all conditions below the hock, we are compelled to look upon it as an effect.

If knuckling be an effect, then where is the cause? This we must know if we expect to relieve it. When caused by an injury to the limb below the hock, we immediately and unquestionably recognize it as an effect, for the cause can easily be detected, and if we are asked why the injury causes knuckling, we will explain that it is the animal's effort to relieve the injured part of a portion of its work. If that be true in these cases, why is it not true in all cases of knuckling?

With this theory in mind, let us look to the hock. If a horse is lame from a spavin, this lameness signifies that that part of the limb is unable to perform its work with comfort, and instinct has taught the animal to relieve the parts by placing the limb in a position where the work of that part will be lessened. This the animal always does in a case of spavin lameness by voluntarily adjusting the parts to a position that will throw the weight in the direction of the toe. If the soreness increases, he will continue his efforts until the wall at the toe will be forced from an oblique to a vertical position.

Now we know that the more oblique the direction of the pastern bone, from behind to before, the more weight is thrown upon the heels, while the more vertical its direction, as seen in short-pastern horses, the more weight comes upon the toe. This anyone can determine by the wear on the shoes It will be seen by this that it would be extremely inconvenient for an animal to increase the weight in the direction of the toe, while allowing the ankle to continue in a position that will force it upon the heels. So it is quite natural that his first efforts will be to change the position of the bones from this angle and place them in a position that will lessen the angles and similar to the position they occupy in a short-pasterned horse. This can only be done by forcing the ankle upward and forward—the beginning of knuckling. As the ankle is forced forward, the weight on the heels is relieved, and the support they offer the limb has become lessened, and nature now comes to the rescue by increasing the growth of the wall at that point. If the condition of the hock requires it, these changes will continue until the ankle has formed an angle with its apex in front, and the length and direction of the wall at the heels will correspond to that of the toe and is known as a club foot. But this change in the contour of the limb necessitates other changes. What about the flexor tendons, whose ability to perform their work of flexing the limb depends upon their power to contract, but by raising the heels we have shortened the distance between their points of attachment, which is equal to increasing the length of the tendon, and it becomes necessary that they be shortened, and as they are shortened they become thicker, and this is the condition so often mistaken for a cause of knuckling.

As it has been admitted that injury to the tendon will cause knuckling, I wish to remind you of what was previously said. Where the injury is the cause, heat, swelling and soreness will always be present, and the knuckling is the result of the animal's efforts to relieve the work of the tendons by shortening the distance between their points of attachment, while the thickening found in the other cases is never accompanied by any of these symptoms.

When a horse has been lame for a long time from the effects of a very large spavin, we expect to find all of these abnormal conditons of the limb below the hock, and don't hesitate to say that they are caused by the spavin, but while a horse continues to go sound, we look upon them as a group of conditions peculiar to that part of the limb below the hock.

Before saying more upon this subject of knuckling and its cause, it might be well to say a few words about spavin. Most of us veterinarians, and nearly everybody who owns or drives a horse, think they can detect the presence of a spavin. To be reasonably sure of its presence they depend upon one of two things or both; either a bony enlargement on the inside of the hock that can easily be detected, or the character of the lameness, but few owners think a horse spavined if he is not lame. But if one will carefully study the condition in all of its stages in several thousand horses, he will find that it presents a very interesting study. We will see animals not showing the slightest enlargement at the seat of spavin so lame that they cannot be driven off a walk. We will see others showing quite a large spavin, but slightly lame, while again we will find others with a spavin as large as a hen's egg going perfectly sound and performing hard work.

Of those that go lame there are some that will start off on their toe and drive entirely out of their lameness, while others of this class will continue to show some lameness, but the heels will come upon the ground after going a short distance, to again go off on his toe and very lame if allowed to stand a short while; some will start off lame with the heels upon the ground and are slow to drive out of their lameness; some will start off lame with both heels upon the ground and continue lame, while others will start off sound and suddenly go very lame and continue so to the end of their journey, and likely for several days even refusing to put that foot on the floor when led out. This animal is likely to respond readily to treatment.

We have found among those animals a great difference in the condition and appearance of the hock, a great difference in

the character and degree of their lameness. There was but one condition always present—that was knuckling of the fetlock joint. This will be present to some degree where the slightest lameness exists.

If this is the only one condition that is always present, may we not consider it as a symptom of spavin?

Some years ago my attention was attracted by this condition of the ankle. The thing that interested me most was the fact that many of the worst cases did not show the slightest lameness, while many others showing but a slight knuckling were very lame. For this reason it seemed impossible the knuckling could be the cause of lameness and must surely be an effect, but as lameness was not always present it seemed hard to associate the one with the other. However, it became evident that when lameness was present the cause of lameness always existed in the hock joint, while in many of the worst cases of knuckling, when no lameness was present, a well-developed spavin could be found, and vice versa. Now this seemed a mixed-up affair, for there were knuckled horses showing no lameness, knuckled horses showing no spavin and spavined horses showing no knuckling, but always a knuckled horse when lameness was present.

At about this time there came under my care a number of colts sired by a spavined horse. They were well-bred animals, with fairly long pasterns. Before reaching the age of two years, every one showed a tendency to knuckle, and at the age of five years every one was knuckled and spavined. Those that remained free from lameness, the degree of knuckling remained about the same, while those that went lame showed a rapidly increased degree of knuckling. These animals, having a small and finely bred limb, rendered it easy to detect the slightest abnoramal condition, and a most careful examination failed to detect the presence of the slightest unsoundness below the hock.

A spavined horse going sound and showing no sign of knuckling, if from any cause of injury to the seat of the spavin he suddenly goes lame, he will immediately go knuckled, and continue knuckled until the lameness disappears.

If a spavined horse going sound and free from knuckling begins to show lameness, if the lameness is caused by the spavin, knuckling will always precede it. Should the ankle remain in its normal position, never treat the spavin, for it is positively not the seat of lameness.

As we know, a large percentage of spavins, some of which are very large, never cause lameness, while again many very small and some obscure spavins cause intense lameness, we are compelled to recognize some influencing factor other than its size. We all know that it is possible for a spavin to develop to an enormous size and never cause a minute's lameness. While it may be hard to explain these things, the fact remains that the proof is before us, so that while dealing with this condition we must confine ourselves to a study of the symptoms as manifested by the animal itself.

We may not know why some horses go sound with a large spavin and lame with a small one, but there are some things we do know, for the animal tells us as plainly as it can be told in the sign language. The trouble is we are not familiar enough with their language. However, we understand their reason for doing some things, for every animal will do the same thing when the same cause exists. For instance, if a spavin hurts a horse to the extent of causing lameness, that animal will invariably adjust the limb to a position where the weight is thrown more in the direction of the toe. His first move in an effort to do this is to change the relation of the bones at the ankle.

This is absolutely necessary, for he is powerless to change the direction of the weight on any part of the limb, unless he first changes the relation to each other of the parts that support the weight.

If the soreness increases, as manifested by the degree of lameness, a further change in the position of the bones at the ankle (increased knuckling) becomes necessary, this to be followed by the high heel, thickened tendon and other conditions seen in chronic spavin lameness. Of this group of conditions there is but one that can be designed or controlled by the animal

—the displacement of the bones, the condition known as knuckling. He is surely powerless to control the growth of the hoof or thickening of the tendons.

If high heels and thickened tendons are recognized as conditions that contribute to the comfort of the animal suffering from the effects of a spavin, and admitted that their presence is caused by and secondary to the knuckling, then we are compelled to accept the knuckling as the one and only symptom and the other conditions as an effect.

This makes it easy to account for some things that at first seemed difficult to understand, such as the presence of knuckling in the absence of lameness, or when a careful examination of the hock failed to reveal the presence of a spavin. For when we remember that many horses with very large spavins go sound with their ankle in a normal position, showing that no relief to the limb was necessary, it is only reasonable to think that others suffering a slight soreness could be relieved to the extent of going sound by a slight knuckling. If a slight knuckling relieves a slight soreness at the seat of spavin, then the degree of knuckling would depend upon the severity of the soreness.

If the soreness be sufficient to cause a slight knuckling at the time when it first begins to form and the development of the spavin checked, the degree of knuckling will remain the same. This condition is often seen in young horses. If a spavin can be relieved by knuckling and the degree of knuckling controlled by the will of the animal, why is it not possible under some conditions for the relief so given to permit of the full development of a spavin without the animal showing lameness, as shown in cut No. 1 and seen in many animals? The knuckling of these limbs continued to increase, the spavin continued to develop, and the animal continued to go sound, while performing his regular work. Everything seemed to be nicely adjusted to the requirements of the conditions he was subjected to, but when the animal, through play, kicked both hind-feet into the air, the jar occasioned by the weight of his body, when his feet were returned to the ground, passed through the limb in a dif-

ferent direction from that occasioned by work, with the result that he immediately went lame.

It is not uncommon for knuckled horses to suddenly go lame, and if the cause is at the seat of spavin, the degree of knuckling will immediately be increased.

I have nothing new to offer in the treatment of spavins. The form of shoe I apply will be referred to later.

It is better to try to prevent this condition than relieve it, and if knuckling can be accepted as a positive and never-failing symptom of an approaching spavin, it will prove a long stride in that direction, as it will permit of our removing the effect by treating the cause at a time when no other manifestations of its presence can possibly be detected. This might result in preventing the development of many spavins, lessen the degree of knuckling and number of knuckled animals.

It is generally acknowledged that a spavin is caused by too much strain being thrown upon that part of the limb, as a result, either of a peculiar or abnormal conformation of the limb, known as a hereditary cause, but more generally by an unbalanced limb.

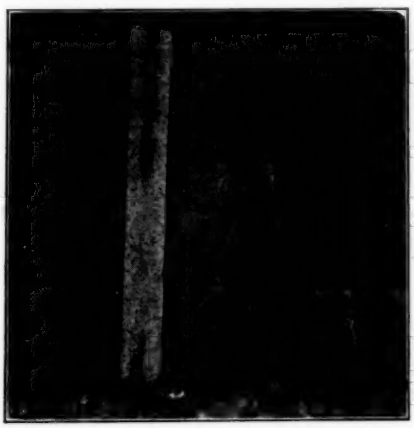
When caused by the former, not much can be done to relieve it, but if caused by the latter, very much assistance can be given. For the amount of work performed by any part of the limb is influenced by the shape and position of the foot, and in many cases, where spavin lameness is present, the lameness can be relieved, often permanently, by simply adjusting the weight.

The method usually employed to relieve a spavined animal is the application of a shoe with thickened heels, but this is only contributing to the relief of a condition that now exists, and could not be useful as a means of preventing it. It seems very necessary that we make a nice distinction between the two, for the reason that many of us think that that which will relieve a condition, if employed sooner, might prevent it.

Horses that develop spavins are usually seen to stand high on the inside, with the weight passing through the foot in the direction of the outside toe, and for the reason that spavins usually develop very slowly, it is hard to determine if this is a

cause or any effect. While trying to determine this it is well to bear in mind that those animals with a foot with the outside wall nearly vertical from the heel to the outside toe are usually, if not always, spavined. Again a horse when first showing lameness, if he stands low on the outside, as he usually does, will often be relieved by raising that side of the foot. This coupled with the fact that we know the voluntary displacement of the foot, when seeking relief, is forward, as shown by the knuckling and high heels, leads me to look upon it as a cause.

If a low outside be accepted as a cause, it would be well to shoe him in a way that will not only place the limb in a balanced position when first shod, but cause it to remain in this position until he requires shoeing again.



No. 2.

Cut No. 2 shows the hind-limbs of a horse that was used for saddle work nearly every day for 22 years. During the last 18 years of that time I lived on the block where he was stabled, and saw him in use many times during each week. All of this time the animal went sound behind.

The position of both ankles corresponded to the position of the right ankle, as seen in the cut; and while the wear on the shoe was greater in the direction of the toe, the hoof retained its normal shape. The inside of both hock joints were smooth,

but slightly "rounded," and he would be a brave, but indiscreet man who would attempt to convince the owner, or any horseman, that this animal was spavined in both limbs.

One morning following his average drive of the day before, he was found in his stall so lame in the left hind-leg that he refused to do more than touch the toe to the floor when compelled to move.

The position of his ankle was now very much flexed, as shown in the cut. The ankle was placed under treatment for three weeks by the owner, and as he showed no improvement and was about 27 years old, he decided to have him destroyed.

I saw him for the first time, since getting lame, passing my place on the way to be destroyed. I asked that he be left with me for an hour, which was done. I immediately took the pic-

No. 3.

ture as shown in cut No. 2. I then cocained the seat of spavin, and in 20 minutes took the picture shown in cut No. 3.

The lameness was now very much relieved, and, as shown in the picture, the knuckling was very much reduced.

The animal was taken a distance of about half a mile, when the owner called me up on the 'phone and said he was going sound and acting like a two-year-old, and he didn't think he would have him destroyed, but after I had explained the case to him he was put to death, and I got the limb. Upon dissection

the condition of the tarsal and metatarsal bones on the inside of the joint would cause one to wonder how this animal had continued to perform work without showing lameness.

I know I have already overtaxed your patience, but I feel that I would not be fulfilling my obligations as a veterinarian, if I allowed this opportunity to pass without saying a few words about the use of the old-fashioned three-calked shoes, for I consider them responsible for more spavined horses than all other conditions combined.

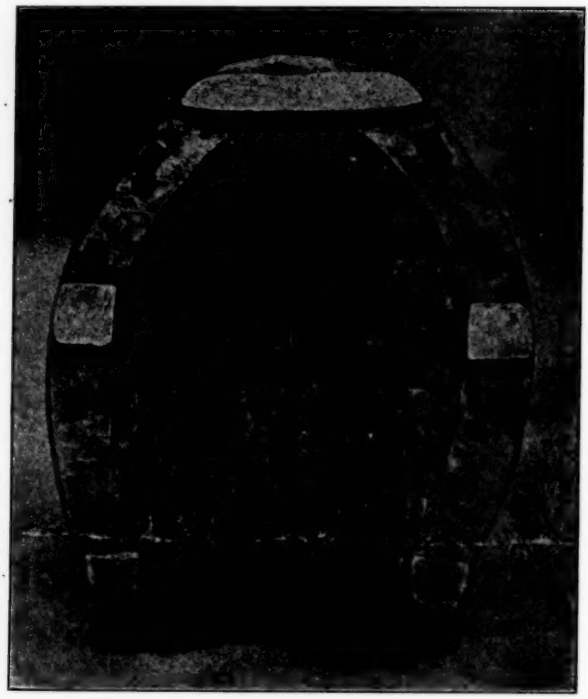
The broad quarters of the unshod hoof provides the limb on either side with sufficient support to prevent its rotating in that direction, but place a three-calked shoe upon a table and attempt to rotate it, and you will find that absolutely no resistance is offered to its displacement in the direction of either side. How could there be? As the support, provided by the shoe, corresponds to the length of the toe in front and the distance between the two heels behind. It robs both sides of the limb of every particle of its support. There is no one who can deny this statement and, unless we are prepared to prove that support at that place is not essential to its health and comfort, there should be a law passed prohibiting the use of such a shoe.

I consider it a waste of your time to dwell longer upon this subject. The evidence of the injurious effects of such a shoe is too apparent to make it necessary to point it out to this intelligent body of men, but I cannot help but express my surprise that we, as veterinarians, have not taken a more active part in trying to abolish their use.

The long and continued use of these shoes can only be accepted as proof of the amount of suffering they have caused millions of horses, as well as a loss of service to their owners, and cannot be offered by us as a reason why their use should be longer continued, when conscious of their injurious effects upon the limbs.

When a horse is lame in the hock, I always apply a shoe as shown in cut No. 4. In very many cases, when the animal first goes lame, no other treatment is required, and my experience

along this line with hock-joint lameness has convinced me beyond any question of doubt that the support provided by the two



No. 4.

calks situated under the quarters is essential to the comfort of the limb.

Summary.

That breaking over (stumbling behind) is always caused by a slight knuckling, when the weight comes upon the limb. That knuckling is always present when there exists any condition of the hock joint, at the seat of spavin, which renders that part of the limb unable to perform its work with comfort.

That absence of knuckling in cases of lameness behind can be accepted as proof positive that the cause does not exist in the region of the inside of the hock joint, no matter how large the spavin is that may be found there.

That absence of support under the quarters is responsible for more hock-joint lameness than all other causes combined. That there exists on the inside of the hock joint of 75 per cent. of all horses, more than six (6) years of age, an abnormal condition, the result of strain, which renders that part of the limb less able to perform its work.

Now, gentlemen, I thank you for your attention and display of patience, for I know I have said some things that seem radical to many of you, but I solicit your careful investigation of this subject and assure you that I am willing to abide by your findings.

I will now conclude by asking that this association be appointed as a committee to determine the effects of three-calked shoes upon the limbs of horses. And if in their opinion the use of these shoes are as injurious as claimed by me, that this association at their next regular meeting, if they deem it wise, take some action to prevent the use of any form of shoe that does not provide the sides of the limbs with support equal to the support offered by the quarters of the unshod hoof.

HORSE POPULATION IN UNITED STATES INCREASED 58,000 IN THE PAST YEAR; BUT FOOD PRODUCING ANIMALS HAVE DECREASED.—Statistics of the United States Department of Agriculture show that on January 1, 1913, the total number of horses on farms and ranges in the United States was 20,567,000, valued at $110.77 per head, with an aggregate value of $2,278,222,000. Compared with January 1, 1912, horses had increased 58,000; mules increased 24,000; milch cows decreased 202,000; other cattle decreased 1,230,000; sheep decreased 880,000; swine decreased 4,232,000. In average value per head horses increased $4.83; mules increased $3.80; milch cows increased $5.63; other cattle increased $5.16; sheep increased $0.48; swine increased $1.86. In total value horses increased $105,528,000.

DR. JAMES B. COUGHEY, an old subscriber to the REVIEW, died recently at his home in Pittsburg, Pa., at the age of 53 years; apoplexy being the cause of his death. Dr. Coughey was a government veterinary inspector for a number of years. He is survived by a widow and one daughter.

THE TUBERCULOUS COW IN RELATION TO HUMAN HEALTH.*

By M. H. Reynolds, St. Paul, Minn.

Prevalence.—I have the impression that the prevalence of bovine tuberculosis is not usually appreciated by physicians and sanitary workers in the human field and feel that I should first of all emphasize this matter of prevalence. We have more or less of it all over this country where there are cattle; more prevalent, of course, in city dairy herds and in pure bred herds; less prevalent under range conditions, but it exists, more or less of it, practically wherever there are cattle.

Wherever there are tubercular cattle there are tubercular hogs, as a very general rule. In fact, it has come to be recognized in recent years that a herd of hogs intimately associated with a herd of cattle gives a very reliable means of diagnosing tuberculosis among the cattle of that farm.

Abundant statistics are easily available showing prevalence of bovine tuberculosis in Massachusetts, Maine, New York, Pennsylvania, Maryland, Minnesota, Wisconsin, Nebraska and other states. From these states we have reliable evidence that should be accepted as satisfactory by any scientific man for the prevalence of tuberculosis under all possible conditions of breeding, stabling, and even lack of stabling.

The following figures may be startling to those who have not been studying this question. I quote from reports of the Federal Bureau of Animal Industry.

Cattle and hogs inspected and carcasses condemned, 1901 and 1905. (Bear in mind that approximately only one-half of tuber-

* Presented at a joint session of Minnesota Association for the Prevention and Relief of Tuberculosis with State Conference of Charities and Corrections, Austin, Minn., October 27, 1912.

cular carcasses are condemned; *i. e.*, one-half of tuberculin reactors.)

1901	Cattle carcasses inspected	5,219,149
	Condemned carcasses	6,454
1905	Cattle carcasses inspected	6,096,597
	Condemned carcasses	10,956
1901	Hogs carcasses inspected	24,642,753
	Condemned carcasses	8,650
1905	Hogs carcasses inspected	25,323,984
	Condemned carcasses	64,919

The following table shows the number of animals of each kind slaughtered under government inspection during the fiscal year ending June 30, 1908, and the number and percentages found affected with tuberculosis. Note in hogs and cattle going to market an enourmous increase in proportion of the tubercular.

	Number Slaughtered.	Number Tuberculous.	Percentage Tuberculous.
Cattle	7,116,275	68,395	0.961
Hogs	35,113,077	719,309	2.049

The comparison here is on a somewhat different basis from the preceding for years 1901 and 1905. In the one case "carcasses condemned," in the latter "proportion found tuberculous."

The actual situation is undoubtedly better than these figures would indicate, for the inspection was probably more rigid and careful in 1905 than in 1901 and better still in 1908. The inspection of swine carcasses has been much more thorough during the past few years. Further, the number of known tuberculous cattle sent to the abattoirs has increased greatly on account of rapidly enlarging state and municipal work with the tuberculin test.

But the critical student of the tuberculosis situation will soon convince himself that these considerations do not explain the

difference between the figures of 1901 and those of 1908, nor for any similar period that might be selected.

I presume the best general statement now available as indicating the general prevalence of tuberculosis among cattle is one made a few years ago before an international congress on tuberculosis by Dr. Melvin, chief of our Federal Bureau of Animal Industry. This was to the effect that during a period of 15 years preceding 1908 they had received reports of 400,000 tuberculin tests from all over the country. These showed on a large average 9.25 per cent. reactions. Veterinary sanitarians will all agree that this is higher than would be shown if it were possible to test all cattle of the United States at any one time, for the reason that while much of the testing was done indiscriminately in the course of city and state work, some of it was done with herds that were already suspected and therefore presumably in bad condition.

It may be interesting to note how Minnesota stood in this series of 400,000 tests collected by government officials. Including only individual states from which 1,000 or more tests were taken, the average percentage of tuberculin reactions ranges all the way from the lowest figure, 4.56 per cent. for Maine, to 25.14 per cent. for New Jersey. Minnesota's showing is 4.99 per cent. Vermont shows 6.54 per cent. Massachusetts 13,75 per cent.

In the course of some work at the Minnesota Experiment Station a few years ago I had occasion to study the prevalence of

Class	Number of Herds Tested.	Number Animals Tested.	Number Reactions.	Per Cent. Tuberculous.
Natives	137	2,839	223	7.8
High grades	5	157	17	10.8
Pure breds	6	258	43	16.6
With " fair ventilation "..	45	1,087	67	6.16
With " poor ventilation ".	48	1,210	201	16.6

bovine tuberculosis under specific conditions of stabling and breeding. We investigated the stabling and breeding of something over 3,500 cattle tested with tuberculin with a showing of results that should be interesting to those engaged in the work of sanitation. Yet the actual conditions correspond very closely with what any well informed person should expect.

Minnesota's showing for the year ending August 1, 1908, was for pure bred cattle tested 1,329, of which 36.8 per cent. reacted. Of grade cattle there were tested 25,887, of which 7.7 per cent. reacted. The average percentage of reactions among cattle for the year regardless of breed was 9.3 per cent. I would call attention to the very close agreement of Minnesota's average for this year with the general average for the United States, 9.25 per cent. for the 15-year period reported by Dr. Melvin.

Under the new law, which took effect January 1, 1910, ordering official tuberculin test of pure bred cattle sold for breeding purposes, there were tested during the first seven months 3,035 cattle with 11.2 per cent. reactions. For the following year, which began August 1, 1910, 1,717 cattle were tested, of which 1,214 were given their second test with only .9 per cent. reactions. These figures quite plainly suggest the serious prevalence of tuberculosis among pure bred cattle and the possibility of controlling the disease in this particular class of cattle.

It has occurred to me that it might be helpful for those who are fighting tuberculosis in the human family to know something concerning our Minnesota state work with tuberculosis among cattle.

Minnesota in Relation to Bovine Tuberculosis.—By state laws and official regulations it is provided that when a herd is tested in Minnesota and cattle react, the usual procedure in order of occurrence is appraisal of reactors on the owner's premises; shipment to South Saint Paul or to any point within the state where there is a packing plant and provision made for federal inspection. Such cattle are sold in the regular channels of trade subject to inspection. The owner receives the carcass, returns whatever that may be and three-quarters of the difference between

carcass returns and the appraisal, this difference being paid directly from the state treasury.

Admitting that tuberculosis is a common disease among cattle, there is required only a little knowledge of bovine tuberculosis, a bit of practical knowledge of cows and stables and an ordinary measure of common sense to realize that there are in constant operation, easy and frequent means of transfer from the bovine to the human.

Abundant Opportunity and Means of Transfer to the Human.

It is a matter of common knowledge among veterinarians and pathologists in general that cows have open lesions of the respiratory organs; that cows do cough and spray out material from the mouth and pharynx; that cows, unlike horses and some other animals, usually or always swallow any discharge reaching the nose or pahrynx. Any infection in this material is, of course, liable to be discharged in the feces. It is equally well known that cows have open tubercular lesions of the intestines which constantly and certainly infect the bowel contents. It then becomes just a matter of plain common sense to see how easy it is to develop a general contamination of mangers, feed boxes, atmosphere, and stables in general from cough or from bowel discharge or from both.

Contamination of milk is a disagreeable phase of the question but one which should not be ignored in this discussion. Some tubercular cows have been proven beyond question to pass virulent tubercle bacilli from the bowels. In our own experimental work at University Farm, Reynolds and Beebe(1) found one cow, a fat and very handsome pure bred polled angus cow that was constantly passing abundant and virulent tubercle bacilli in the manure. We were able to reproduce tuberculosis in guinea-pigs at will by simple direct inoculation from a cotton swab

(1) Dissemination of Tuberculosis by the Manure of Infected Cattle, Minnesota Experiment Station Bulletin No. 103.

thrust into the nostril; in other words, the nasal secretion and the feces of this cow were both constantly distributing virulent tubercle bacilli.

Schroeder has reported in detail work showing beyond question that tubercular cows do pass virulent tubercle bacilli in the bowel discharge. Everyone who is at all familiar with cow stables and milking knows how extremely easy it is for fine particles of dry manure from the tail or flank or udder to gain access to the milk pail; in fact, some little care in the way of wiping with damp cloth is necessary to prevent this. The suggestion is obvious. Granted a tubercular cow giving milk and it does not require a very vivid imagination to trace a virulent bovine tubercle bacilli from the cow to the susceptible child for whom raw cow's milk constitutes the sole or most important article of diet.

The British Royal Commission agrees in its final report with statements of many individual workers on another point that has become a matter of common knowledge among intelligent veterinarians; namely, that bovine tubercle bacilli are almost certainly found in milk from udders having tubercular disease; and that virulent bovine tubercle bacilli may and frequently do appear in milk from tubercular cows having apparently quite normal udders. This, of course, does not say that such bacilli always come through the udder. The contamination may occur in the pail.

We can safely assume that cows are frequently tubercular; that they have open lesions; that there are frequent and easy opportunities for transfer. Are tubercle bacilli from the bovine virulent for the human?

Virulence of Bovine Bacilli for the Human.

Types of Bacilli.—The British Royal Commission in its final report, 1911, recognized three types; human, bovine and avian. This grouping is commonly accepted and has been for several years. The avian type has no important bearing in this discussion. Leaving this out of consideration this commission states

plainly that it prefers to regard the two types; *i. e.*, the bovine and human type of the bacillus, as simply environmental variations of the same bacillus and the lesions which they produce are regarded as manifestations of one disease. They experimented with a large variety of animals and say that the disease produced in susceptible animals by both types of the bacilli are histologically identical.

They report in plain words investigations of many instances of fatal tuberculosis in the human where the disease was undoubtedly caused by bacilli of the bovine type and that alone. Comparing these lesions histologically and otherwise with similar fatal cases due to bacilli of bovine origin, they conclude that the lesions were anatomically indistinguishable. This great commission after years of study unhesitatingly adds man to the list of animals notably susceptible to bovine tubercle bacilli.

Referring to variations in virulence of tubercle bacilli at the International Congress on Tuberculosis four years ago Arloing, a great Frenchman, made the following statement:

"From the standpoint of hygiene, they emphasize the unity and fusion of the classic types and demonstrate the necessity of taking precautions against the tuberculous virus, whatever may be its origin."

At the same congress Fibiger and Yensen, of Copenhagen, announced the following conclusions in connection with an address on the relations of human and bovine tubercle bacillus:

"There are some cultures, however, that must be considered as transition forms, having some of the characteristics of the bovine and others of the human eye."

There is available plenty of clinical evidence of intertransmission. Repp collected a series of 32 human cases of tuberculosis from the bovine. These had been carefully studied and accepted by such men as Hills, Denne, Ernst, Pfeiffer, Law and Ravenel as evidently due to bovine bacilli. In the judgment of these men the circumstantial evidence was so clear and so complete as to give a strong probability that the cases were due to infection from the bovine. Plenty of such collections are avail-

able. There are pages and pages available for any one who wishes to study this question. Moss(2), of John Hopkins University, has collected and reports 16 cases of cutaneous infection in the human in which either the bovine bacillus was found or case histories and clinical evidence gave a clear and strong probability of bovine origin. These 16 cases were studied and accepted by such men as Tschering, Smith, Ravenel, DeJong. In this same series collected by Moss are 40 alimentary tract cases in the human. These cases were studied and accepted by such men as Ernst, Adami, Ever, Johne, Ravenel, Bang, Klebs, Bovaird. In addition to these skin and alimentary cases there are plenty of cases of cervical adenitis with laboratory demonstration of bovine bacilli origin.

The British Royal Commission has given us several interim reports and a final report after years of work. The German Royal Commission and other commissions have reported after apparently unbiased and competent study of these questions. Their reports are easily available, their statements positive and clear.

The final report of the British Royal Commission in 1911 presents information which sanitarians can not reasonably belittle or ignore. This commission has set for its task to inquire and report:

First, whether the disease in animal and man is common and the same. *Second,* whether animals and man can be reciprocally infected with it. *Third,* under what condition, if at all, the transmission of the disease from animal to man can take place and what are the circumstances favorable or unfavorable to such transmission.

It was evident from the start that answers to these questions which could be accepted by scientific medical men must be based upon work conducted on a large scale and through a long period of time. Animal work was conducted upon actual farms with actual cattle as well as in the laboratory.

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(2) The Relation of Bovine to Human Tuberculosis, Johns Hopkins Hospital Bulletin 20, Number 215.

In their first interim report issued in 1904 the commission stated that they had inoculated cattle with bacilli of the bovine type derived from the human and produced generalized tuberculosis in the bovine.

In their second interim report of 1907 it was shown that fatal cases of human tuberculosis had been proved, due to bacilli typically of the bovine type, but added that all cases examined up to that time was abdominal tuberculosis and occurred in infants and children.

The final report of 1911 states that it has been proved that fatal cases of phthisis in the human adult may be caused by typical bovine bacilli. You will remember that Dr. Koch, after his memorable address of 1901, conceded in 1908 that fatal cases of mesenteric tuberculosis might be caused in children by bovine type bacilli, but still insisted that all cases of phthisis in the adult were due to bacilli of the human type.

The British Commission recognized in its final report in positive statement that man is clearly suspectible to at least two of the three types of tubercle bacilli; *i. e.,* to the bovine and human.

A summary of cases studied and presented by this commission shows in one connection 128 cases of tuberculosis in the human adult. Very few lung cases in this list were referable to the bovine tubercle bacillus, but their report for abdominal tuberculosis and especially for children was very different. Nearly one-half of the studied cases in young children which died from primary abdominal tuberculosis were attributed to the bovine bacillus alone.

Some of the best work that has been done by those who are studying this question has come from the Research Laboratory of the Department of Health, New York City. I can only call your attention here to a few features of one of the latest reports from Dr. Park and his associates. This appears in the *Journal of Medical Research* for September, 1912.

In a careful study and tabulation of cases reported by others they have summarized a study of 252 tuberculous children under

five years of age. Of these 252 there were 201 due to the human type of bacillus and 51 to the bovine type of the bacillus, about 20 per cent. due to the bovine type. Park and his associates had already reported a study of 478 cases of human tuberculosis and in this later publication they have combined their 478 cases with those previously mentioned as reported on by others. The combined showing is a total of 1,511 cases of all ages. There were 368 cases among children under five years of age. Of these 368 cases 292 were due to bacilli of the human type and 76 to bovine tubercle bacilli, if there be two distinct varieties. If, on the other hand, we accept the unity of tubercle bacillus, then tuberculosis of the bovine becomes at once identical with human tuberculosis. You see it makes no difference which horn of the dilemma may be taken by those who belittle the importance of bovine tuberculosis. He can have his choice and accept on the one hand two types with 20 per cent. of the cases in children under five years of age reported by others and accepted by Parks and his associates and a trifle over 21 per cent. in the combined series of 368 cases in children under five years of age; or he may accept the unity of the bacillus and identity of disease.

The location of tuberculosis due to bovine infection as shown in this recent study by Parks is interesting. Suppose we omit from this study by Parks and associates all but the fatal cases in children under five years of age, a comparison of infections with bacilli of human and bovine types shows as follows. The following figures are for total cases reported and exclude mixed infections:

Of total 13 cases of abdominal tuberculosis in children under five years of age there were three due to the human type and ten due to the bovine type of bacillus.

Of generalized tuberculosis of alimentary origin in children under five years of age, 30 cases, there were 16 due to bacilli of human type and 14 for the bovine.

Of 69 cases of generalized tuberculosis, regardless of origin, there were due to the human type bacilli 64; bovine 5.

Of 15 meningeal cases, secondary to tuberculosis of alimen-

tary origin, there were due to human type bacilli 5 and bovine 10.

This series of 237 cases includes 91 fatal cases in young children investigated by Parks and his associates added by these workers to those previously reported by others. In their own series of fatal cases of non-selected tuberculosis in children under five years of age 12.5 per cent. were due to bovine infection. In their list were included nine cases from a foundling asylum and fed exclusively on cow's milk. Of this particular group, five were plainly of bovine infection.

In view of the present information it appears to me surprising and regretable that health officers and even practicing physicians should ever be inclined to ignore or belittle a reasonably probable, important relation between bovine and human tuberculosis. This is surprising in the face of a large amount of carefully reported statistics and practical clinical experience. If it can be shown, as it undoubtedly has been, that a few or any cases of human tuberculosis are due to directly to infection from bovine, it seems logical and reasonable to infer that these persons are not unique and that there must be others susceptible. A disease or an infection which destroys any human life is of itself a serious matter and can not be reasonably ignored.

Frazier, reporting from the Research Laboratory, Royal College of Physicians, Edinburgh (see *Journal of Experimental Medicine* for October, 1912) presents a study of the relative prevalence of human and bovine type of tubercle bacilli in bone and joint tuberculosis of children.

He reports for a total of 70 cases studied. All were of children under 12 years of age, with exception of three cases. Of the total 70 cases 39 were point disease, 31 bone disease. Each individual case was worked out systematically along lines that are fully reported.

Of the total 70 cases the bovine bacillus alone was present in 41; the human bacillus alone in 26. Both forms were found in three cases.

The associated study of age, family history, milk supply and

environment is interesting. This series of cases is significant because the study is confined to a specific age limit. Associated family histories showed for children under one year four cases, all four due to bovine bacillus.

One to two years, 12 cases, 8 due to bovine, 2 to human, 2 bovine and human.

Two to three years, 15 cases, 11 to the bovine and 3 to the human type of bacillus, one bovine and human. After three years of age the proportion due to human bacillus gradually increases. In this series there were no more cases due to mixed infection with both types after three years. This, of course, may have been merely a coincidence.

The family histories gave interesting data. Where there was family history of tuberculosis 71 per cent. of the cases were due to the bacilli of human type. Where there was no family history of tuberculosis only 17 per cent. were due to the human type and approximately 82 per cent. of the bovine type.

So far as the milk supply was concerned it is shown in this study that there were a number of children less than one year of age that had been nourished entirely upon cow's milk and in these cases only the bovine bacillus was found. In the total 12 cases under two years of age there were 8 due to bovine bacillus and each had been fed from birth upon cow's milk.

The general conclusion is that a serious proportion of bone and joint tuberculosis among children in Edinburgh is due to the bovine bacillus coming from cow's milk.

There has been a most unfortunate tendency for medical opinion and public opinion so far as the latter has been guided by the former to swing from one extreme to another in its view of this problem. Not long since we were told by great men who were considered authorities that people commonly became tubercular as children; that the chief route of infection was through the as yet imperfectly fortified alimentary canal; and the inference was plainly given that since cow's milk constituted the most important or sole article of diet of many young children that therefore cow's milk was the great offending factor—

an extreme view, of course, and not resting on any careful scientific demonstration.

Later, and we are just emerging from that period now, came the other extreme, a tendency to belittle or even ignore bovine tuberculosis as an important factor in human tuberculosis.

In a communication to the Sixth International Congress on Tuberculosis in 1908 Sims Woodhead, Cambridge, closed his address as follows:

"As for myself, I am so satisfied with the nature of the evidence that has already been obtained, not only in England but in Germany, in France, in Denmark, not to speak of important investigations carried on in other countries, that I am unwilling to countenance the relaxation of a single regulation for the control of bovine tuberculosis. Indeed, I will go further, and state my strong conviction that in the interests of hygiene, and with a view to the final stamping out of tuberculosis from the human race, additional and more stringent regulations will undoubtedly have to be drawn up and applied."

It has been my privilege for several years to associate rather closely as a member of the International Commission on Control of Bovine Tuberculosis with the members of this body. I have been with them in commission sessions and in private conversations repeatedly and feel sure that not one of the 14 members now has any question concerning the frequent transmission from bovine to human or that this is an important phase of the question. On this commission are such men as Ravenel, V. A. Moore, Mohler, Hodgetts, Hurty and Schroeder. Dr. Hodgetts represents the public health officers of the Dominion of Canada. Dr. Hurty, secretary, State Board of Health, Indiana, was selected to represent American health officers. There are 14 members on this commission, but these are the men whom we consider our guides for this particular phase of the problem. In the reports of this commission occur such statements as the following, adopted without any dissenting vote or opinion:

"Young children fed on such milk (milk from the tubercular cow) often contract the disease and it is a frequent cause of death among them."

I remember distinctly that the exact wording of this sentence was given careful consideration and the sentence stands in its report exactly as the commission believed that it should stand.

Again this commission states "that all milk and milk by-products used as food (human) should be properly pasteurized, unless from cows known to be free from tuberculosis."

The British Royal Commission consists of such men as Sir Michael Foster, Sims Woodhead, Sidney Martin, Sir John McFadyean, Robert Boyce and Sir William Powers, and has studied this question. The International Commission on Control of Bovine Tuberculosis, the German Commission, and many individual workers have studied this question carefully and thoughtfully and they agree that whether the bacillus of bovine tuberculosis and the bacillus of human tuberculosis be mere varieties of one specific organism or are two distinct types, incapable of converging mutations, the tubercular cow must be considered as an important factor, and as a direct cause of tuberculosis in the human.

Surely there is but one reasonable—only one safe position to take regarding the tubercular cow. It is that she is an important—not the most important, but an important source of tuberculosis for the human, and that under present conditions she is an ever present constantly operating menace to human health.

THE RECENT MEETING OF THE MICHIGAN STATE VETERINARY MEDICAL ASSOCIATION AT LANSING was probably the most largely attended in the history of the organization and, in fact, was in every sense an exceptionally good meeting. The proceedings of this association have attained such volume and importance as to make their publication advisable; and a publication committee was therefore appointed at the last meeting. The following gentlemen were elected to guide the affairs of the organization the coming year: Dr. G. D. Gibson, president; Dr. R. P. Lyman, 1st vice-president; Dr. M. J. Smead, 2d vice-president; Dr. H. A. Haynes, 3d vice-president; and the re-election of Dr. W. A. Ewalt, of Mt. Clemens, as secretary-treasurer; so that the success of this active body for 1913-14 is assured.

THERAPEUTICS.*

By H. D. Bergman, D.V.M., Physiologist, Division of Veterinary Medicine, Iowa State College, Ames, Iowa.

The general term Therapeutics certainly covers a multitude of sins. Primarily, the term is derived from the Greek "*Therapevo,*" meaning "to attend upon," and as now used comprises all the science and art of healing, and includes the use of drugs and all other agents and measures which are known to alleviate pain or favorably influence diseased conditions. Hence, it may be seen that any treatment from the administration of the proverbial bull-frog per orem in impaction with the idea that he may burrow his way to freedom via the anus, to the scientific administration of vaccines and serums might be included in the general term Therapeutics. Even the operations of Nature herself are properly embraced in this term. Therefore, in order that we may understand upon just what basis we are working, we usually subdivide therapeutics as follows, namely, into natural and applied therapeutics, and we may further subdivide applied therapeutics into empirical and rational therapeutics.

Natural therapeutics includes the great and all important healing powers of Nature, whose processes occur independently of art and tend to the spontaneous decline and cure of disease. There is no scientific dogma, or doctrinal notion asserted without regard to evidence, better established than this, "that the living organism is in itself adequate to cure all of its curable disorders." This natural law sustains the medical skeptic in his infidelity as to the value of medicines, enables the crudest quackery to report cures, and helps all of us out of more close places in practice than we are generally willing to acknowledge. While scientific medicine admits and welcomes the indispensable assist-

* Presented to the twenty-fifth annual meeting, Iowa Veterinary Medical Association, Ames, November, 1912.

ance of nature in fighting diseased conditions, yet the art of applied therapeutics, embracing the applications of agents foreign to the living organism for the purpose of aiding nature to restore the body to a healthy condition, is now recognized as a subject as broad as the universe. We may subdivide applied therapeutics into empirical and rational therapeutics. By empirical therapeutics we mean the use of certain therapeutic agents, for the sole reason that they have been tried previously with successful results in cases apparently identical with the one under treatment, or in other words, it is merely an elaboration of Mrs. A recommending Mrs. B to use peppermint tea because it cured Mrs. C of the very same trouble. Empirical therapeutics, sometimes styled the therapeutics of experience, was the original method in therapeutics and has certainly conferred many rich gifts upon medical science. The use of salicylic acid in rheumatism, potassium of iodide in various paralyses, arsenic in anorexia and cachexia are examples of empirical use of remedies. Permitted to reign supreme, empirical therapeutics would be destructive to all exactness in therapeutical progress, as the so-called experience of one observer is too often overbalanced by the experience of another equally competent, and also, as failures are seldom reported, there can be no scientific comparison of the failures with the reported successes. So it may be seen that empirical methods alone tend toward a minimum degree of accuracy in a science, which in the very nature of things can never be exact.

Rational therapeutics means the use of remedies for reasons based upon knowledge of the pathological conditions present in the subject and the physiological action of the agent employed. This method is the very antithesis of empiricism, and has been the leading idea in every revolt against empirical therapeutics in the past, and many of our old doctrines, such as Stimulism, Chemicism, Galenism, etc., originated in efforts to find a more rational system than the prevailing methods of their day of administering medicine. Albrecht von Haller, the father of physiology, was the real originator of modern physiological thera-

peutics, his dogma being that "drug proving is the only true basis of drug using." This idea is now inspiring the minds of medical scientists and students all over the world. Medical colleges are recognizing physiological drug experimentation as a part of their regular curricula; laboratories are being fitted up with costly instruments of precision for the more exact prosecution of this study; and systematic researches are being conducted upon animals to ascertain the physiological action of every agent hitherto used in medicine. The alkaloids and other active principles of vegetable drugs, together with the numerous synthetic compounds which chemistry is giving to medicine, are subjected to the same rigid experimentation, and the various medical journals are being filled with the results of this work. Hence the conviction that physiological experimentation with drugs must be the basis of their proper therapeutic employment is certainly and rightly growing into a fixed law of professional belief, and the future advance of experimental therapeutics depends on the cooperation of pharmacological and clinical experimentation.

A Few Drugs and Their Practical Application.

Perborate of Sodium.—Perborate of sodium is a white, odorless, tasteless peroxide powder, which may be applied to wounds, bruises, abscess cavities, ulcerative surfaces, hemorrhages, etc., either in powder form or solution, as dissolving the powder in water forms an alkaline solution of hydrogen peroxide, the germicidal power of which is greater than that of ordinary hydrogen peroxide solutions. Sodium perborate solutions seem to have numerous advantages over hydrogen peroxide solutions, namely, they are alkaline in reaction, rather than acid, as are the majority of hydrogen peroxide solutions. Solutions of any strength desired may always be freshly prepared, as the powder is very stable, while hydrogen peroxide solutions deteriorate rapidly after opening, and hence one cannot be certain as to the strength of solution he is using. Perborate solutions contain sodium borate and sodium carbonate or hydrate, while hydrogen peroxide solutions contain sulphuric or phosphoric acid, barium

salts and often preservatives. The oxygen evolved by the use of perborate solutions or by the powder, when it is brought into contact with moist surfaces, not only acts as a powerful germicide, but tends to renew and vitalize worn-out and diseased tissue, for the value of active oxygen as germicide as well as a healing agent is now firmly established by science as well as experience. Perborate of sodium powder of solutions are also valuable for their deodorant properties in cases of excessive mucous secretion, oral fetor, etc. In cases of hemorrhage the powder, if applied, shows a marked styptic action, checking the blood flow rapidly. The solubility of perborate of sodium is limited to 20 to 30 grams or approximately one ounce to a quart of water at ordinary temperature. Such a three per cent. solution amounts to two volumes of hydrogen dioxide, which would be approximately a twenty per cent. solution of hydrogen peroxide, or a one to five thousand solution of bichloride of mercury. By raising the temperature of the water to not over 105 degrees F. the solubility gradually increases, or by adding a few grams of citric, tartaric or other acids the solubility may be increased until a ten to forty per cent. solution may be derived, or a solution of two to three times the germicidal strength of hydrogen peroxide. We have observed excellent results from the use of the powder as a dry dressing in a variety of suppurative conditions in preference to various other antiseptic ducting powders.

Alcohol.—The value of alcohol and alcoholic solutions as antiseptics and disinfectants has been the subject of a number of researches lately, particularly by two Germans, Alfred Beyer and Schumburg. One would naturally suppose that absolute alcohol, which contains not more than one per cent. by weight of water, would be the most powerful alcoholic germicide. Such, however, is not the case, for it has been shown that alcohol fails to penetrate and destroy the organisms, unless in the presence of water. Hence dry bacteria or bacteria dried artificially are not killed when exposed to absolute alcohol; in fact, the alcohol seems to preserve them by abstracting moisture. Certain dry bacteria may be exposed to absolute alcohol for twenty-four hours without losing any of their vitality. However, absolute

alcohol will kill moist bacteria, and bacteria in bacterial fluids die almost immediately when exposed to absolute alcohol. Hence it may be seen that alcohol fails to penetrate the organism, unless in the presence of a certain amount of water. According to Beyer, a 70 per cent. solution of alcohol by weight, which equals approximately a 76.7 by volume, showed the highest bactericidal power, being thirty times as effective as a 60 per cent. solution, and forty times as effective as an 80 per cent. solution. In fact, he says that solutions under 60 per cent. of over 80 per cent. by weight are comparatively useless for all practical purposes. Higher concentrations than 70 per cent. are comparatively inactive, since they contain such a small percentage of water that the alcohol through its hygroscopic properties tends toward drying and preserving the bacteria rather than penetrating and destroying them. Mixtures of alcohol with chloroform, ether, benzol, acetone, glycerine, etc., do not exceed properly diluted aqueous solutions of alcohol in bactericidal power. Neither are the actions of phenol, lysol, creoline, etc., appreciably increased by dissolving in alcohol. Alcoholic solutions of iodine, such as the tincture of iodine, probably exceed all other antiseptics in germicidal power, killing anthrax spores in one minute. Weak solutions of iodine, even as low as ¼ per cent., have proven themselves effective against stphylococci. Decolorized tincture of iodine is inferior to the tincture of iodine, but however is a strong bactericide. The practical importance of these few facts concerning the antiseptic action of alcohol would be especially applicable in surface or skin disinfection at the seat of an operation or hypodermic injection, in cleaning hypodermic syringes and, in fact, under any condition where the organisms present would be in a more or less dry condition.

Stovaine and Adrenalin.—It appears to the writer that as a local anaesthetic stovaine possesses certain advantages over cocaine, which are worthy of consideration. Stovaine is a synthetic compound, the hydrochloride of an ester of benzoic acid, appearing as small white lustrous crystals, very freely soluble in water. Although stovaine is decomposed by alkalies and mer-

curic salts, yet, generally speaking, it is much more stable than cocaine, and its aqueous solutions may be sterilized by heat below 248 degrees F. It is less than one-half as toxic as cocaine and is equally powerful as an anaesthetic. Every veterinarian has noted the toxic effects of cocaine exhibited in the form of excite ment and restlessness in horses following the injection of a dram or upward of a 5 per cent. solution, or, in other words, these toxic effects may be noticed with as low as three grains subcuneously. Less than a 5 per cent. solution does not give the best of results injected locally, and it is often necessary to use two drams or more of the solution to satisfactorily inject the seat of operation. This would be equivalent to six grains of cocaine, and toxic effects are often observed with this amount. These toxic results are not observed with stovaine. Cocaine is a vaso constrictor, while stovaine is a vaso dilator, which point might also have its advantages. The extra hemorrhage or rapid absorption with resultant shortened local action, which might be experienced due to the vaso dilator effects of stovaine, may easily be controlled by the use of adrenalin chloride solution. If stovaine is used alone for skin anaesthesia it should be injected into the dermis and not subcutaneously. Stovaine is being used in preference to cocaine with great satisfaction in human practice for local and spinal or lumbar anaesthesia. We have been observing excellent results in our clinics at the hospital from the use of stovaine and adrenalin chloride solution as a local anaesthetic and hemostatic agent. From one to two drams of a 5 per cent. solution of stovaine in a 1-1000 or 1-2000 solution of adrenalin chloride give excellent results in minor operations in the larger animals, and 1 c.c. or so of the same for operations, such as trimming ears, etc., in dogs.

Yohimbine.—Yohimbine is an alkaloid obtained from the bark of the yohimbehe tree, and is probably one of the most powerful aphrodisiacs we possess. In human practice it has been employed with excellent results in pure forms of sexual impotence, but not in those due to constitutional organic disease or old age. Especially good results have been observed in sexual neurasthe-

nia and in impotency of neurasthenic origin. Following the use of the drug in animals, Muller states that the genital reflexes are rendered more acute, and that all the symptoms of sexual excitement are observed in both the male and female. Aside from stimulating sexual appetite, a marked vaso dilating effect is noticed throughout the body following the administration of yohimbine. As a result of this vaso dilation a marked congestion of the genital organs is noticed in both males and females. Authorities cannot quite agree as to whether the drug exerts a selective action on the genitals, or whether the congestion of the sexual organs is due to the general vaso dilating effect. According to a number of German investigators the drug causes a marked local congestion of the genital organs and thereby increases sexual desire. Male experimental animals following the administration of yohimbine showed erection of the penis and swelling of the testicles and epididymus. Females showed swelling of the horns of the uterus, hyperemia of the uterine mucous membrane, bloody discharge from the vagina and swelling of the vulva, together with other symptoms or signs of heat. The undesirable results following large doses were slight hemorrhages from the intestines and bladder. According to Holterbach the action of yohimbine per orem is unreliable and also expensive, and he recommends the subcutaneous injection in small doses. One injection he says is usually sufficient, as in 3 to 6 hours the animal in question shows full sexual desire, which lasts from 30 to 60 hours, and from which impregnation occurs in 90 per cent. of the cases.

Pfab, another investigator, cites the following interesting experience with yohimbine: Out of 79 cases treated for impotency and to produce heat he secured 62 positive results, or an average of about 78½ per cent. These animals consisted of two stallions, three bulls, one boar, eight mares, fifty-three cows and heifers, and twelve sows. For each of the larger animals he used one-half gram or seven and one-half grains of yohimbine hydrochloride dissolved in 200 c.c. of water, adding five minims of chloroform as a preservative. He administered one table-

spoonful three times daily. To the smaller animals he administered one-tenth gram or one and one-half grains in the same amount of water and in the same way. He also tried administering one decigram or one and one-half grains subcutaneously in the large animals, but discontinued, because the cows failed to react as readily as when given per orem. One mare developed colic twelve hours after injection and twenty-four hours later was in heat. Our own experience with bulls and stallions has been only with the subcutaneous method, with which we have had excellent results. In the case of boars we have observed good results both hypodermically and by administering the drug with the food. Yohimbine hydrochloride costs about $10 per gram, hence the cost of treating the larger animals per orem would be approximately $5 each and subcutaneously $1 each, the smaller animals approximately $1 each. Solutions of the salts of yohimbine deteriorate quite rapidly, hence should be freshly prepared and kept in brown bottles while using.

"LOUISIANA NEEDS MORE QUALIFIED VETERINARY SANITARIANS" is the caption of an article appearing in the Baton Rouge *Country Review* by "Sanitas," whom most of us know as one of our most prominent veterinarians and a past-president of the A. V. M. A. The reasons given for this need and the suggestions offered for its accomplishment are examples of the resourcefulness of the writer. The live stock interests are increasing, and more veterinary sanitarians are needed to protect them from disease; the laws are such that the stock owners are protected against "fraudulent fakers in the guise of veterinarians"; and, in order to get qualified veterinarians in country parishes where none are at present available, it is suggested that these parishes employ a veterinary sanitarian to look after its periodic outbreaks of contagious diseases, just as they have their health officer to look after the contagious diseases among the people, pay him a reasonable salary, and allow him his private practice to enable him to make up his income. It is believed his salary would be saved many times over, and that he would be one of the most valuable citizens in the community

FORT KEOGH REMOUNT DEPOT.*

By Veterinarian G. E. Griffin, Third Field Artillery.

The Fort Keogh Remount Depot is located between the Yellowstone and Tongue Rivers in the State of Montana, about three miles west of Miles City.

The reservation is ten miles square, well watered and drained, and its southern half is excellently sheltered from cold northern winds by a chain of tall bluffs. Its pastures abound in the nutritious and bone building "buffalo grass," which as a horse forage has no superior, and in addition to this valuable grass there is present a good supply of "blue stem" and "gramma."

This station has been in operation for about three years, and in that short period, under the able management of Captain H. P. Howard (Cavalry), it has done remarkable work in developing among the horse raisers of the territory tributary thereto an intense interest in the type of animal needed by the service.

From time immemorial the Northwest has been satisfied with the native "Cayuse" horse, which appears to have filled the needs of the stock raiser. Agricultural pursuits are more and more curtailing the area devoted to stock raising and as a consequence there has been a demand for a heavier type of animal to do the planting and harvesting of crops. To meet this demand, draft stallions of the Percheron, Clyde and Shire breeds were introduced and these animals crossed on the native mares with not altogether pleasing results.

It is true that a heavier type of horse has been produced, but he is devoid of symmetry and of clean, easy action; in fact, as a rule, he is something of a nondescript, heavy of head, short of neck, straight of shoulder, large of joint, wide of breast, small of barrel, weighty of croup, shaggy of leg, flat of hoof, and nasty

* Reprinted from *Journal of the U. S. Cavalry Association*, January, 1913.

in disposition, but nevertheless possessing good bone, wind and hardiness.

It must be admitted that the native horses were not much improved by the introduction of the draft sire. The cross was too violent to begin with, for it is a well known fact that among *horse breeders,* of whom there are many in the Northwest, violent blood crosses among horses are repugnant to nature.

It should be understood by the interested reader that these remarks on the draft cross apply to horse raisers, not horse breeders, horse breeding being a profession, horse raising a trade.

While horse conditions were at their worst in the Northwest, viewed from a purely military standpoint, the Fort Keogh Remount Depot was established, and not a moment too soon either. Had it been established ten years earlier the Northwest could now be depended upon to creditably horse the army in any emergency.

The first attempts of Captain Howard to furnish the service with mounts from this depot were, to say the least, discouraging. He had little that was even fair to choose from. The horse raisers did not know what the service needed and they were disappointed to discover that the best of the material on hand was barely suitable for army needs, and even this was purchased grudgingly on account of a start having to be made.

The horse raisers were unacquainted with the conformation of desirable military horses; therefore, it was a large part of the duty of the depot to educate and enlighten them along desired lines. This duty was up-hill work, but it has borne fruit and at present many of the ranch owners are breeding with the army in view as a market. For this purpose standard Hackney and Morgan sires have been secured and a few cases coach and thoroughbred. These sires have been crossed on selected mares with apparently good results so far as one may judge by the youngsters produced.

The strangest part of the cross with the drafters is that the second or third generation has produced many excellent artillery horses.

In conjunction with the difficulties encountered in procuring suitable military horses in the first two years of the depot's existence. Captain Howard had to contend with the prejudices of the service itself against Northwest horses with their disfiguring brands and notoriously bad dispositions.

Many of the older mounted officers had been educated in a school of good military equine conformation established by Missouri and Kentucky horses. This well known conformation has for many years been accepted, subconsciously no doubt, as a standard until now any minus deviation therefrom is looked upon with disapproval, contempt and even scorn. This is natural enough, too, but we, for the next two years at least, must become reconciled to a minus standard; for it should not be forgotten that the trolley car and the automobile have practically supplanted the light type of horse in those states on which the army has been in the habit of depending for its mounts. Even in the state of Missouri the draft animal is taking the place of the desirable combination horse so dear to the heart of every true cavalryman, and to such an extent that it is becoming more difficult each year to find a decent representative of the cavalry type of horse.

Had the Remount Depots not appeared when they did our horse problem would have been by this time a very serious one indeed.

Superficial observers of horse conditions frequently remark that there are more horses in the country now than there were at any other period since its settlement. This remark is undoubtedly true, and the price is higher too, but if the markets are searched and the class of horses considered, it will be found that eighty per cent. of the horses are of the draft type and that where we could find ten good cavalry horses five years ago, two cannot be found now.

It has been my own custom to purchase, train and develop a youngster each year. This year I have been unable to fine one at a reasonable price, and only two at an exorbitant one. It is not that my standard has become more exacting that I am unable to find a decent colt, but it is due to the fact that they are very scarce

and expensive even in the famous Platte County, Missouri. Such is the condition of the military horse market and such it will remain until the Remount Depots have convinced the people that it will pay them to raise a military type of horse.

There is considerable after-dinner horse talk now-a-days; some of it sentimental twaddle about the disappearing thoroughbred. The thoroughbred may disappear from the race course, where he was usually a weedy looking, short distance racing machine on which to foolishly bet money, but he will always remain here with credit to himself so long as decent, healthy men and women ride to hounds and demand speed, spirit, endurance, cleverness, weight and height in their mounts.

We do not need the thoroughbred horse in the ranks; as a cavalry horse he is undesirable mostly on account of temperament, conformation, inability to carry heavy weights for long periods, and an alarming loss of condition when exposed to the elements and skimped in his rations. He will do to cross with selected dams from which the cavalry conformation must come if it comes at all. Very little has been said of the " saddler " as a sire when breeding for the service is considered, nevertheless I venture the opinion that the true cavalry and light artillery horse will be produced from such a sire on carefully selected dams of good ancestry.

With all its discouragements the Fort Keogh Remount Depot is remarkably well organized and runs as smoothly as a well oiled machine in good order.

At this depot horses are first gentled by polite man-handling and then trained without the use of spurs and oaths. Cavalry horses are given a course of several months in the saddle, and artillery horses a less time in saddle and draft, before they are considered ready for distribution.

The methods of handling differ slightly at the different Remount Depots, but the general principle is the same. At Fort Keogh they have to use a " squeeze gate " to halter the new arrivals and draw a plan of the unsightly brands, which are now beginning to disappear entirely. It is believed that the " squeeze

gate" may be dispensed with in a year or two when the new crop of desirables with good reliable dispositions begins to arrive.

The cavalry horses now at that station are good. It is true they have not the style and class we have been accustomed to, but they are such an improvement over those of two years ago that our trust is in the depot and we believe our faith to be well founded.

The internal economy of this depot was something of an agreeable surprise; here was a small herd of sheep which furnished a carcass of mutton at least once a week; over there was a decent looking beef herd which supplied the American staff of life; yonder was a graded dairy herd furnishing an abundance of milk, cream and butter, while in a well sheltered swale was observed a large flock of white leghorns, carefully kept up to standard.

On the lowlands of the Yellowstone River were extensive fields of alfalfa, oats, corn, and some wheat, all of which were used to advantage in the feeding scheme. There was no haphazard farming indulged in at Fort Keogh; everything was done in a manner that indicated intelligent knowledge of the subject. A strict system of accounts is maintained and the profits from sheep, cattle, chickens and crops known exactly.

A special page could be devoted to the system of hog raising employed here. Suffice it to say that the animals composing this herd were first class in every respect and a source of considerable profit to the station. Perhaps it will be thought by some that the farm products are the perquisites of those connected with the station. Such is not the case. All profits are turned into the station fund and used for the running of the machine.

It is believed that this station will be self-supporting in a few years under management similar to that of the present.

We have it figured out for us at regular intervals that the price of a cavalry horse laid down at final station, under the remount system, is all the way from two hundred and fifteen to three hundred and fifty dollars. When all overhead expenses are

considered it is probably high, higher than what the animals would cost under the old system of purchase.

In any new extensive industry, where the original investment is large, the first few thousand articles manufactured would cost enormously if the investment were charged against them. It certainly is not a business method of fixing cost price early in the campaign; consequently those who are now crying against cost of production at Remount Depots must eliminate the original investment from their calculations for a few years more at least, until these depots are firmly established and have a decent opportunity to demonstrate their usefulness and economic value to the service.

It was not the writer's good fortune to see much of the commanding officer, Captain Howard, he having to depart on a purchasing expedition, but he had the good luck of becoming well acquainted with his assistant, Captain Archie Miller (Cavalry), who proved to be an energetic, painstaking, hard-working officer; a thorough horseman whose knowledge of the horse situation in the Northwest was surprising. This officer had every subject connected with the depot and its work tabulated in his brain in a wonderful manner. His whole heart seemed to be in his work and to such an extent that not a detail was overlooked. For the interest of Fort Keogh may the time be long until he is Manchued.

It might not be amiss at this point to say something about the proper time at which to make requisitions for young horses. All of us know that it has been the custom to call for remounts in the spring; at that season they were expensive and were beginning to shed their winter coats. On arrival at station the dealer's condition melted like snow in the sunshine; the coat dropped out in patches, and often with it the pen or pasture lice that had bred there during the winter. By May these young horses looked like "*the devil*"; nevertheless, out they went to be trained—save the mark—and hardened for the summer maneuvers, which killed a goodly number of this class of mount each year.

All remounts should be requisitioned for just after the sum-

mer's work. On arrival they should all be placed in one building, under the supervision of a sensible Fort Riley graduate and worked until the following spring under his direction. About April or May they may be turned over to the units to which they pertain.

Under a system similar to this there is little doubt but what remounts would give a good account of themselves during the summer.

The chances are that some one will remark: What are these Remount Stations for anyway if they cannot shape horses and put them in condition to be issued for immediate service? Are they not supposed to do the training?

It may be proper to reply that we do no expect Recruiting Depots to turn out finished and hardened soldiers, ready to take the field under all conditions on arrival at station; they need as much, and perhaps more, additional training and conditioning as the Remount Depot youngsters.

THE NEW YORK STATE BREEDERS' ASSOCIATION meeting at Utica, January 22-23, presented a most excellent program, which was prepared for the purpose of presenting the claims of the various types of horses that can be profitably raised in the Empire State. Among the authorities who addressed the meeting were, Messrs. Forest Henry, Dover, Minn.; Francis M. Ware, Brookline, Mass.; Samuel Walter Laylor, New York, N. Y. (Editor *Rider and Driver*); Sidney S. Loman, New York, N. Y. (Editor *Trotter and Pacer*), and many others from Illinois, Iowa and Ontario, Canada; and our own Hollingworth, representing the veterinary profession, gave them some hard facts on some needed changes in the stallion registration law. This meeting was presided over by the Hon. Calvin J. Huson, Commissioner of Agriculture of the state, who is president of the organization.

REVIEW INVALUABLE TO THE YOUNG PRACTITIONER.—An Iowa veterinarian, in renewing his subscription, writes: "I find the AMERICAN VETERINARY REVIEW to be a very great help to me in many ways, and consider it *invaluable* to the young practitioner just starting out."

LEGISLATIVE TOPICS.*

By W. J. Martin, V.S., Kankakee, Ill.

As a member of your Legislative Committee I desire to call your attention to the existence of certain defective legislative enactments now in force in this state that concern your welfare both as citizens and professional men, and which it is your duty to have amended or repealed. The first and most important one that demands your immediate attention is the repeal of the anti-tuberculin law of 1910, which is still in force in this state. This law, in my opinion, is one of the most pernicious pieces of legislation that was ever placed upon the statute books of this state. It was conceived in ignorance and intolerant bigotry and passed by deceit and misrepresentation of well-known scientific facts that were self-evident to the whole civilized world, by a class of cheap politicians, working in the interests of a small class of milk producers and dealers, who wished to have a free hand in furnishing the people of this state with a grade of milk that might be obtained from any source they saw fit—either from diseased or healthy cows. The special sponsors of this law set up the plea that the tuberculin test was unreliable for an accurate detection of bovine tuberculosis; furthermore that it was injurious to the general health of the animals, upon which it was used.

It seems like a waste of time and energy in this day and age for any person or group of persons to combat the assertion that the tuberculin test is unreliable or injurious in its effects, when performed by a competent veterinarian. Yet such were the contentions of the members of the legislature in 1910 that passed this law. This assertion on their part has been the means of subjecting the people of this state to contempt and ridicule by nearly the whole civilized world. We saw this finely illus-

* Read before the thirtieth annual meeting of the Illinois State Veterinary Medical Association, at Chicago, December, 1912.

trated in this city one year ago, when the United States Live Stock Sanitary Association, at their annual convention in this city, passed a set of strong resolutions condemning the legislature of this state for placing such an infamous law upon the statute books. I wish to say to you, gentlemen, that it was the most humiliating experience that I have ever witnessed, when, as citizens of Illinois, we were compelled to sit and listen to the reading of those resolutions, without being able to say one word in defense of this commonwealth.

By the passage of this law the legislature of this state turned backward the hand upon the dial of scientific progress, whereon is written the medical investigations and discoveries of the past 25 years, pertaining to the prevention and eradication of human and animal tuberculosis—this foul and awful disease that bears that dread name, "The Great White Plague." And it is appropriately named, for about 200,000 human beings die annually from it in this country alone. It is estimated that of this number about 15 per cent. of these deaths were caused by the tubercle bacilli of bovine origin. Statistics show that of all the people who die in this country annually between the ages of 15 and 45, one-half of them die from tuberculosis. There is no disease in existence in this country that causes so much human misery and suffering as tuberculosis. It is common, world-wide knowledge among medical men and veterinarians, and even a large number of the general public, that drinking milk obtained from a tubercular cow will cause tuberculosis in the human subject; but you could not convince the members of the Illinois legislature of 1910 that such was the case, because they spent $10,000 of the taxpayers' money to prove the contrary, at least to their own satisfaction; and, what is more important, they tried to convince the people of this state to view the matter in the same light as themselves, by depriving them of the right and privilege to protect themselves from this important source of the disease—milk from diseased cows.

Now, let us pause for a moment and see who advocates the use of tuberculin as a reliable diagnostic agent for the detection

of bovine tuberculosis, also of its non-injuriousness to the animals, to which it is administered. First, the U. S. Government; secondly, the Canadian Government, together with the legislatures of some forty-two states in this country, who have passed laws requiring the use of tuberculin as a diagnostic agent. It is hardly necessary to state that nearly all civilized governments throughout the world recognize the value of this test. The legislature of Illinois is the only law-making body in the world (so far as I know) who has placed itself on record against this test, thereby casting odium upon the intelligence of the people of this state and subjecting them at the same time to humiliation and inconveniences in interstate live stock traffic with her sister states. But you cannot stop scientific progress by legislation; as well try to stop and sweep back from the shore the waves of the ocean at high tide.

If the members of our legislature who passed this law had devoted a few hours of their valuable time to reading some of the bulletins and reports issued by the United States Government on the nature and cause of human and animal tuberculosis, or the reports of the British Royal Commission on Human and Animal Tuberculosis, a commission that spent ten years in investigating tuberculosis and the tuberculin test, I believe they would never have placed this obnoxious law on the statute books of this state.

The opponents of the tuberculin test in this state make the assertion that in the pasteurization of milk from tuberculous cows we have an efficient method of preventing the spread of human tuberculosis. This is true only in part. Where this process is carefully performed it is true that a large number of the disease germs contained in the milk is destroyed. But, unfortunately, the method of pasteurization that is conducted in many milk producing establishments is nothing but a farce. The only way in which a disease can be cured is by removing the cause, and just as long as you have tubercular milk just so long will you have tubercular people, tubercular hogs, calves, poultry, etc.

During the past summer there was great excitement here in Chicago over the question of how to procure pure, healthy milk for the people. The great cry was and is, "Save the babies." We witnessed the spectacle of the mayor of this city hurrying here from his summer home among the shady dells of Wisconsin to preside over deliberations of a special session of the city council, called at the demand of the people to frame some kind of an ordinance, by which the milk supply of the city could be improved and to obtain clean, healthy milk. I thought it passing strange at the time that among all the speeches made and resolutions passed by the various individual and civic bodies not a single voice was raised (so far as I could learn) demanding the repeal of the very law that deprived them of the right to demand of all milk producers that every gallon of milk shipped into the city should be from cows that were known to be free from disease. The medical profession appears to me to be strangely silent upon this important subject, viz., the obtaining of milk for human consumption from cows that have passed the tuberculin test and are thus known to be free from the disease beyond the peradventure of a doubt. Whether this apathy on their part is due to lack of interest in the subject or fear of arousing some concealed opposition, I am unable to say. Suffice it to say that as a class the medical profession in this state has rendered us very little aid in the war against bovine tuberculosis, and if they are afraid to engage in the effort to have this law repealed, we should not be, because we are a body of progressive scientific men, interested in the health and welfare of the general public; and we will have the moral support not only of the majority of the people of this state, but of our professional brethren in this country and Canada as well.

With this object in view, I recommend that a resolution be passed by this association and signed by the president and secretary demanding the repeal of the anti-tuberculin law now in force in this state, and that a copy of the said resolution be mailed to the Governor and every member of the legislature in this state.

I would also recommend the passing of a resolution by this association asking for an amendment by the legislature of our present live stock sanitary laws, whereby the Board of Live Stock Commissioners be given ample authority to enforce proper sanitary rules and regulations regarding the importation of domestic animals into this state from adjoining states or foreign countries, that said animals be accompanied by proper certificates, showing that they have passed the tuberculin and mallein test, as the case may require. Also that the Board of Live Stock Commissioners' authority be amplified, so as to give them power to enforce quarantine and disinfection measures against any farm or other premises in this state where hog cholera or other contagious diseases of swine may exist.

The law pertaining to the contagious diseases of swine, that became effective July 1, 1895, does not, in our opinion, fully cover this subject, as no authority is given the Board of Live Stock Commissioners to enforce quarantine and disinfection measures against premises that may be affected with hog cholera. Millions of dollars are lost annually by the hog raisers of this state from cholera, and in our opinion they will continue to sustain this great loss annually, until a rigid system of quarantine, isolation of diseased animals, together with the thorough disinfection and cleaning up of the premises where the disease exists, and the enforced use of hog cholera serum. Such a system of hygienic measures is in force in Canada and has been highly successful, to a large extent, in reducing the ravages of hog cholera.

There is no reason why any person who is known to have hog cholera on his premises should be permitted to endanger all the hogs in his immediate vicinity by driving or hauling his cholera-exposed hogs to the public markets or elsewhere. Neither should he be permitted to allow his hogs, dead from cholera, to remain unburied for several days or until eaten by other hogs, dogs, crows, etc.; or that water courses may become polluted with the infection and be scattered over wide areas of country by flood waters.

It is a well-known fact among veterinarians that there is at least 50 per cent. of the hog owners of this state that are averse to taking even the most rudimentary measures to prevent the spread of hog cholera. Such people should be compelled by law to enforce sufficient sanitary measures to aid in eradicating hog cholera from their premises. Glanders has been practically eliminated from this state by a rigid system of quarantine, slaughter of the diseased animals and the thorough disinfection of the premises, and it is my opinion that we will never be free from the destructive ravages of hog cholera until like measures have been put into effect.

Tuberculosis is a common disease among hogs in this state. The percentage increases each year, and it will continue to increase just so long as the dairy-man with the tubercular herd of milch cows continues to feed the by-products of his diseased cows to his hogs. When these tubercular hogs are sold and shipped to markets that are under federal inspection, the animals of course will be detected and the meat condemned. But only about 50 per cent. of all the animals slaughtered for food in this country comes under federal inspection. The balance is slaughtered in private slaughtering establishments, over which there is no form of inspection. At least in the country districts. A few of the large cities in this state have meat inspectors.

Our present meat inspection law, passed and in force since July 1, 1907, is, in my opinion, wholly inadequate to cover this important subject. It should be repealed or amended so as to more fully cover the problem of giving the people of this state clean, healthy meats. We are still, I believe, a long way off in this country from the magnificent system of state or municipal slaughtering establishments that are so common in many parts of Europe, though the leaven of good example from these is at work in some parts of this country, a few cities and towns having established their own slaughtering establishments under the control of competent meat inspectors.

The Board of Live Stock Commissioners should be given a larger control over the country slaughter house. You all know

the conditions that prevail in and around these places. It always seemed to me an anomalous state of affairs for the federal meat inspection system to apply only to meats designed for interstate or foreign shipments, and leave the large majority of the people's meat supply without any sort of supervision, but the conscience of the country butcher, and you all know what an elastic organ that is. Every ounce of meat in this state, intended for human consumption, should bear the tag of inspection from the federal authorities or the Board of Live Stock Commissioners of this state. Then, and then only, will the public be enabled to procure clean, healthy meats.

SOME NEWS NOTES ON THE KANSAS CITY MEETING OF THE MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.—During the luncheon served by the college to the visiting veterinarians at the noon hour Thursday, the college band boys did themselves proud in the rendition of several excellent numbers.

The visiting ladies were given a reception on Tuesday afternoon at the Coates House by the local ladies, and this innovation proved a most pleasing affair.

Tuesday night, while the association was in active session, the ladies had a theatre party at the Orpheum, and on Thursday the college ladies served the visiting ladies a luncheon in the college library, following which some fifty ladies spent an hour or more in attendance at the clinic. This is only another evidence that the wives of veterinarians generally are taking a live and personal interest in the progress of veterinary science.

All sessions of the meeting held the close attention of the members, showing clearly that veterinarians in that section of the country are determined to not only keep abreast of the times, but to have a part in the things that make for progress in the veterinary profession.

The association adopted resolutions to publish its proceedings in book form, so the doings of this association will hereafter be available for reference.

The makers and venders of surgical instruments and other supplies made a most extensive exhibit, and the display exceeded that of any previous meeting of the association, and the spirit of friendly rivalry elicited many favorable comments.

PURULENT INFECTION OF THE NAVEL IN THE NEW BORN.*

DR. A. D. GLOVER, LABELLE, MO.

Purulent Infection of the Navel is greatly favored by many of the circumstances attending the birth of the young animal, When it is born in surroundings of filth and dirt there is constant exposure of the newly made wound. The carnivorous and, to a lesser degree, the herbivorous mother, habitually cleanses the broken cord by licking, and thereby withdraws from it a large part of the Whartonian jelly, thus favoring the early desiccation of the stump. It appears, in spite of the fact that the mouth usually abounds in pathogenic bacteria, the process of licking the navel is, according to clinical observation, comparatively safe and tends to protect the parts against infection.

We observe infection most frequently in the foal, the mother of which animal pays less attention to the navel than most other domestic animals. Purulent infection of the navel often arises, also, as an indirect result of ligating the umbilical cord. The danger from ligating the cord lies usually in two principal elements, the infection of the wound by careless application of the ligature and the provision of a breeding ground for bacteria by the inclusion (retention) of the Whartonian jelly.

From a surgical standpoint nothing can be more dangerous to the new-born animal than the careless or filthy ligation of the umbilical cord. Most ligatures are applied by laymen without sterilization or even washing of hands or ligature. Even when the ligature is applied under some of the rules of modern surgery, other important ones are habitually neglected, and the ligature nevertheless wrongly and dangerously placed. The exterior of the cord consists of the impermeable amniotic sheath, which encloses within it the vessels surrounded by the Whartonian gelatin; if the

* Presented to the Missouri Valley Veterinary Association, at Kansas City, January, 1913.

cord is tightly ligated the gelatin is enclosed, and its fluid portion cannot readily escape to permit the proper desiccation of the stump. Even when the ligature is applied under aseptic conditions, if it retains the Whartonian jelly, the procedure is unsafe, as it furnishes a medium for pathogenic bacteria. The danger from infection is emphasized if the ligature is placed at a point too distant from the umbilicus, thus increasing the amount of tissue to undergo desiccation or putrefaction.

Another danger is the incarceration of the two umbilical arteries and the urachus. If the ligature is applied very tightly before the cord is severed the retraction of the urachus and arteries into the abdominal cavity may be prevented, leaving the open ends freely exposed to infection during the period of putrefaction of the tissues. When a living tissue is ligated and the ligature so tightly applied as to cause necrosis, it appears clinically to cause a prompt leucocytosis on the proximal side of the ligature which largely serves to prevent infection; but when applied to a dormant tissue, like the umbilical stump, no such reaction takes place, and the stump goes on to putrefaction or desiccation, as the circumstances may favor. If the cord is divided at the proper point the Whartonian gelatin pressed out thoroughly, and the stump ligated under perfectly aseptic precautions and kept in an aseptic condition (a very difficult process in the domestic animals), the operation is safe.

Navel infection occurs within a few hours after birth, and the symptoms usually follow very promptly, although in the initial stages of the disease they may be overlooked by the owner. The parts, instead of desiccating normally, become inflamed; there exudes from the center of the cord a dirty, thin, watery, flocculent serosity which may be grayish white or tinged with blood. It will generally be found possible to pass a small probe upward and forward for some distance toward the liver along the course of the umbilical vein. If the infection has been interrupted at the umbilical ring the probe will not pass beyond it.

The behavior of the case will depend upon the degree of extension of the infection. It is an important clinical fact that the

gravity of navel infection is usually in inversed proportion to the local disturbance; when the infection remains localized in the umbilicus itself, the parts become swollen, somewhat tender to the touch and soon suppurate. Small abscesses form in and about the umbilicus, which open and discharge pus, or a fistula may follow.

The swelling from local umbilical infection may be quite extensive; the course of such local infection is usually chronic, continuing for week after week. A somewhat limited amount of pus is discharged, which is generally of the ordinary consistency, and without odor. Such inflammation does not involve the general well-being of the young animal. It takes its food in the normal manner and amount, its digestion is undisturbed, it is playful and its growth is usually unaffected.

When the infection, instead of expanding its virulence upon the tissues of the umbilicus, gains admission to the open umbilical vein, and extends along its course toward the heart, and the bacteria and their products enter the blood stream, the symptoms are wholly different. The coagulated blood within the umbilical vein breaks up under bacterial invasion, liquefies, and may be partly discharged into the hepatic circulation from the central end of the umbilical vein, and externally from the stump of the cord, as a dirty, flocculent, reddish-gray liquid, consisting of the disintegrated blood clot mixed with the pus. The discharge may appear in three or four days after birth and may continue for two or three weeks or longer, should the animal survive. Soon after the commencement of suppuration in the umbilical vein there frequently occurs a corresponding infection in the broken end of the urachus, which results in the duct becoming reopened and a consequent dripping from the navel. Usually this condition is attributed to failure of the urachus to close, and while this condition may sometimes occur, it seems to cause no bad results if promptly treated, but I believe the leakage is generally secondary to the invasion of infection.

The symptoms of general infection vary widely in intensity, from the rapidly fatal cases, which only live a few hours, to

those which for a time do not attract any notice. In some of the mild cases no febrile symptoms occur of such a character as to attract the attention of the owner, and only when the secondary symptoms of infection arise is his attention called to the diseased condition of the patient.

The young animal may be left apparently well in the evening and is found the next morning severely lame in one of its limbs. Upon examination one of the prominent articulations is found swollen, hot and painful upon manipulation. The inflammation usually affects the more important articulations, especially the hock or stifle, and less frequently the elbow and carpus or other joints. The inflammatory condition may suddenly abate, while another articulation becomes involved. As the disease continues there is a well marked tendency for the arthritis to become fixed in a given articulation, and at the same time others become involved, until three or four are simultaneously diseased.

We recognize two distinct forms of arthritis, one a serous inflammation without the formation of abscesses, the other characterized by the presence of abscesses, the contents of which are often mixed with synovia. In the serous form, which is probably most common, the inflamed articulation is greatly enlarged, tense, hot and painful. The distended synovial sac may fluctuate, but does not point; later the articular tissues hypertrophy, the subcutis, synovial membrane and other parts thicken and become more or less sclerotic. At the same time the contents of the synovial sac may increase, causing severe distention, which may remain permanent.

When involving the femoro-patellar articulation, the synovial distention floats the patella upwards until it reaches the level of the top of the external femoral condyle, when the patella slips out laterally to constitute floating luxation of the patella, which may prove temporary or permanent.

Less frequently the arthritis is of the purulent character, and the joints soon become the seat of extensive suppuration, the pain is very severe and the constitutional symptoms are exceedingly marked. After the lapse of a few days the pus in the

synovial sac becomes so abundant that distinct fluctuation is present, the abscess soon ruptures if the animal survives, or if opened surgically, the young animal generally succumbs from septic poisoning.

The severe lameness caused by the arthritis exerts an important influence upon the course of the disease, aside from the septic condition. The lameness interferes with the animal taking proper nourishment, because in many cases it is unable to rise or stand while it sucks, and thus it suffers from starvation. In chronic cases it suffers greatly from decubitus gangrene upon various portions of the body, abscesses may also form in the lungs and, rupturing into the bronchial tubes, cause death from septic pneumonia.

The disease is the result of the entrance into the freshly broken cord of pyogenic micro-organisms, and so far as we are aware is not limited to any one form of infection, as in addition to the lesions mentioned there may occur tetanus, infectious diarrhoea, septic inflammation of the pleura, inter-muscular abscesses, ophthalmia, catarrhal enteritis, pneumonia, bronchitis, etc.

The prognosis is grave in all cases in which the infection has gained the general circulation. It is most hopeless in the foal, in which animal the mortality probably exceeds ninety-five per cent.

Therapeutic treatment consists in stimulants and alteratives, along with the injection of poly-valent bacterin every three to five days, but I do not believe the bacterin is of much value in the serous form.

Prophylactic treatment which is far more successful would consist in the use of some antiseptic, desiccating powder, and thorough cleanliness. Do not ligate the cord.

The powder should be dusted over the stump freely and repeatedly, until the remnant of a cord has become completely desiccated and hermetically sealed. Few diseases of animals are more subject to safe, convenient and economic prevention than navel infection of the new born. Its success calls for fidelity to cleanliness on the part of the owner, preceded by timely and intelligent advice by the veterinarian.

INTERSTATE LIVE STOCK INSPECTION.*

By T. T. Christian, D.V.S., Deputy State Veterinarian, Texarkana, Tex.

Interstate live stock inspection involves the inspection of all live stock being shipped, driven, or in any manner transported from one state to another, and must not be confused with the federal quarantine inspection for fever ticks, scabies, etc.

The primary causes for the enactment of state live stock sanitary laws which require and prescribe the inspection of all live stock coming into a state, is the insatiable desire of man to dispose of diseased animals in the most expedient manner available when he finds that he has such in his possession; and he can always find a dealer who is willing to buy this class of stock at the reduced figure, which they demand, and assure the owner that it will not become known in his immediate locality that he has knowingly disposed of diseased animals, and in this manner wilfully distributed an infectious disease from his own herd to that of his neighbors.

Also there is a large percentage of infection among live stock of which the owner and purchaser is entirely ignorant, such as the tuberculous cow and glanderous horse—which are the most dangerous of all and which cannot be apprehended without an honest test by a competent veterinarian. This being the major class which really demands interstate inspection.

In this manner infectious diseases have been distributed from one state to another, until it has become obviously a necessity that the states must pass laws requiring that all live stock coming within their borders should pass a rigid examination by competent veterinarians, so that in some measure the spread of the infection might be restricted.

The object of interstate live stock inspection is to restrict the

* Presented to the Missouri Valley Veterinary Association, at Kansas City, January, 1913.

distribution of infectious, contagious and communicable diseases and to prevent infection of uninfected areas, and in this manner to protect the health and wealth of the populace by shutting off from their food producing animals the source of infection, and to obviate the necessity for a state to expend vast sums of money in the eradication of a contagious disease after it has once become definitely established.

The legislative body of any state has the power to enact laws prescribing the regulations under which live stock shall enter their bounds. Also they have the power to put inspectors in the fields and vest in them what authority they may deem necessary to protect the health and wealth of their populace.

The methods to be employed in the inspection of live stock must be formulated to meet the demand of each peculiar locality. Where inspected in transit, such as at a point of entry into a state, the stock should be unloaded, fed, watered and allowed to rest before inspection.

The live stock yards at such points should be so equipped that animals being held for inspection could be amply protected from inclement weather, but where emigrant cars are handled that contain but few live stock, and those with ample room to lie down to rest, and on short hauls, it is often advisable to inspect in the car. This is not recommended however where the tuberculin or mallein test is given.

In giving the tuberculin test the cattle should be allowed a good rest, say from five to eight hours, before starting on initial temperatures, and we consider no test valid unless at least three initial temperatures distributed over a period of twelve hours, and four or five subsequent temperatures beginning not less than ten hours after time of injection of tuberculin and taken at two hour intervals, and if the temperature is seen to be rising at the expiration of this time, the animal should be held for at least two more temperatures.

Inspection of stock for transportation should be made on the day they are to be moved and not at some indefinite date prior to the time of movement.

In order to have and maintain a more efficient inspection service, all the states should endeavor to establish uniform regulations, among which should be included the adoption of a uniform health certificate on the back of which should be printed a list of the official inspectors and a digest of the sanitary live stock requirements of the issuing state. This certificate should me made in triplicate, the orignal to accompany live stock, the duplicate to be sent to the Live Stock Sanitary Board of the state of destination, the triplicate to be sent to the Live Stock Sanitary Board of the state of origin. A great many of the states have adopted the uniform health certificate already.

Also a more uniform scale of fees should be universally adopted. This has also been adopted by several states and has proven to be one of the most efficient manners in which to eliminate the all too frequent claim of graft and overcharges. Local conditions however should govern, in a great measure, the charge, as what might be considered a reasonable fee at one point would not be applicable at another.

An inspector should not be expected to make a trip where it takes a day's time away from his local business, and additional expenses, for the same fee that he would do the work at his local point.

A great many complaints arise in regard to overcharges, but I am pleased to say that the bulk of these when ferreted out cannot be substantiated. It is my opinion that the scale authorized by the Live Stock Sanitary Commission of Texas, which is also used by some other states, is the most satisfactory that can be adopted and is as follows:

At home—Tuberculin and mallein test: One head, $5.00; for the next five head, $3.00 per head, etc. Physical examination: For first three head and under, $3.00; for over three head and up to one carload, $5.00; for each additional car, $2.50 per car.

Abroad—Tuberculin and mallein test, $10.00 per day and expenses for ten head or under; over ten head, $1.50 for each additional animal. Physical examination—The same as at home with mileage.

This scale of fees has proven adequate compensation for the veterinarians' services, and satisfactory to the majority of shippers.

The scope of inspection should be widened to cover strangles, influenza, and all so-called shipping fevers. At present very few of the states pay the slightest heed to this class of diseases. It appears that they have come to look upon it as a necessary evil. In fact Alabama is the only state that I know of which absolutely prohibits the importation of stock with these diseases.

More stringent legislation along this line would bring about some remarkable cleanups and changes in the horse and mule markets in this country, and would save shippers a vast sum of money each season.

There is no field of work which presents more opportunities for dishonest service than that of live stock inspection. Nine shippers out of ten will make an effort to secure a certificate without an actual inspection. They will advance arguments in regard to their knowledge of the stock they are handling and point out the fact that they never talk, and that they want to be released as quickly as possbile. Very few of them submit willingly to the tuberculin and mallein tests, and it is a deplorable fact that some veterinarians seem to prefer to make out a temperature chart in their office to going into the pens and doing the actual work.

An inspector who is wont to continue such practices should be punished by having his commission annulled and his name published so that such practices might be forever discouraged.

Every inspector at a point of entry to a state is often confronted with the proposition of the disposition of animals condemned en route. In many instances, as has been the case with the writer, this stock is in a state other than the state of origin, and which prohibits the entry of uninspected animals, yet without the state of destination, and in complying with the requirements of one state you indirectly violate those of another. This is a point I would like to hear thoroughly discussed.

The results obtained from sanitary live stock requirements are of two clasess, the first of a psychologic nature, which prevents the shipment of animals known to be infected.

The second is the apprehending and condemning of attempted shipments of diseased animals, both of those known by the shipper to be infected, and those of which he is ignorant.

The common result is the prevention of the distribution of infectious, contagious and communicable diseases from infected areas to uninfected areas.

The two states which, from my observation, are doing the most toward live stock sanitation are Alabama and Montana, and it is evident that their state veterinarians, Doctors Carey and Knowles, are in a great measure responsible for their efficient requirements.

I am free to acknowledge that in the past Texas has been somewhat backward, along the points noted, but it affords great pleasure to call attention to the fact that within the past two years great changes have been wrought and that she is now striving to maintain an efficient safeguard to her live stock industry by placing veterinary inspectors at each point of entry, and at various points throughout the state.

These changes have been brought about by our present administration. We are indeed fortunate in having as governor His Excellency, O. B. Colquitt, who is a staunch friend to the stock man and veterinarian. He has indeed shown excellent judgment in his appointment of a Live Stock Sanitary Board, the chairman of which, the Honorable W. N. Waddell, of Ft. Worth, Texas, stands eminently fitted as a live stock sanitarian, but the man at the helm who has made our present achievements possible and to whom we are looking for future developments, is our State Veterinarian, Dr. E. R. Forbes, whose extensive experience in the field of veterinary science amply qualifies him for the trying duties of his present office.

ENGAGED: Dr. S. J. Alcalay, Cottonwood, Minnesota, announces his engagement to Miss Julia Rubin, of Chicago. We voice the sentiment of all their friends when we congratulate the happy couple on this their first official step leading to the matrimonial state.

LAND MARKS OF PROGRESS.*

By W. J. Martin, V.S., Kankakee, Ill.

As one of the oldest members of this association it gives me great pleasure in having the honor of addressing you to-day and at the same time to extend a cordial welcome to you all on this the 30th anniversary of this association. I can assure you that it affords me sincere gratification to see before me the familiar faces of so many of the older members—men who have so heroically borne the many burdens of this association in the early days of its struggle for existence; men who have so often experienced the bitter pangs of its defeats, as well as the joys of its victories. These men have indeed been loyal, brave and true to the association and to their profession, and their example may be safely emulated by those who come after them.

When I look over this large assembly of professional men gathered together here from nearly all parts of the country, my mind cannot but revert backwards over the long vista of years that have passed, to the time when a small group of earnest men, imbued with the highest ideals of their profession, met in this city thirty years ago and laid the foundation of this association. A few of these pioneers, I am happy to say, are still with us, and they are just as full of youthful enthusiasm and professional zeal as they were thirty years ago. We all sincerely hope that their days will be long in the land of the living. Others, less fortunate, have joined the silent majority—full of years and honors. Let us pause a moment and drop a wreath on their graves and cherish their memories, ever green in our hearts, while we murmur: "Well done, thou good and faithful servants."

* Presented to the thirtieth annual meeting of the Illinois State Veterinary Medical Association, at Chicago, December, 1912.

"They're passing away, these dear old friends,
Like a leaf on the current cast;
With never a break in the rapid flow,
We watch them as one by one they go
Into the beautiful past."

From the annals of this association for the past thirty years we are able to obtain a fairly accurate record of the progress that has been made by our profession in this country up to the present time. That this progress has been rapid, as well as brilliant, none will deny, but this progress of the past thirty years is but the precursor of a still more rapid and brilliant advance to be made by our profession during the next thirty years.

Progress has always been a prime incentive in human nature, ever since man first made his appearance on this earth. The prehistoric cave-man, originally endowed by nature with the most primitive means of defense and offense—viz., teeth, hands and a rude club of wood or stone, wherewith to procure food and defend himself against the attacks of savage beasts and his even more savage fellow beings—found himself seriously handicapped in the struggle for existence, made an important step forward in progress when he discovered that by chipping a piece of flint to a sharp point and fastening that point into the end of his club he had a much more efficient weapon, viz., a spear. Again, when he discovered the principle of the bow and arrow he had made still greater progress, because this weapon enabled him to kill or disable his enemies without coming into personal contact with them. And so it has been from that early age forward. Every important discovery made by man in the arts and sciences has been a step upward and onward in the evolution of the human race. Evolution, now a recognized science, is but another name for progress.

All animate and inanimate nature obeys that primordial law which is a tendency of matter to advance from the simple to the complex; and veterinary science is no exception to the rule. When we see revolution, peaceful or otherwise, shaking the

foundations of governments, overturning the long-existing order of established customs and usages, that is progress, though some of our ultra-conservative fellow beings would fain make us believe it to be chaos.

The science and art of human and animal medicine has advanced since its first inception, as a rule, slowly; at other times with such great rapidity as to form an epoch or new age. A few only of these can be mentioned here; viz., ligation of blood vessels, by Ambrose Pare; the discovery of the circulation of the blood, by Harvey; vaccination, by Jenner; chloroform, by Guthrie; fermentation and bacteriology, by Pasteur; antiseptic surgery, by Lister; and at the present time we stand on the threshold of a new era or epoch in medicine, viz., sero-therapeutics.

The humblest worker in the field of human endeavor or achievement, be his condition or environment what it may, is often an important factor in making for human progress. Some of the greatest discoveries in the evolution of mankind have quite often been made by men who worked the greater part of their lives in some obscure walk in life.

The race is not by any means always won by the great or strong. Neither are all the important inventions or discoveries made in the halls of great schools or universities, or by those working under the auspices of powerful nations, but more often by the patient worker, faithfullly performing his allotted tasks in the field of every-day life. This holds true in our profession as in every other important occupation of mankind.

Thus we see, in order to be successful in our chosen calling, we should devote as much of our time as possible to study, observation and clinical investigation, and record our experiences for the benefit of our present-day fellow workers, or for those who may come after us.

In this day and age we are passing through a rapid cycle of change. New methods of preventing as well as curing diseases of men and animals are constantly being brought forward. Some of these systems will become permanent weapons in our

armamentarium against disease. Others will be found to be defective and will quickly disappear, never to be heard of again. In order to be able to intelligently discriminate among this vast amount of material, we must keep ourselves by study abreast of the times; in fact, we must progress, because if we do not, we will quickly find ourselves cast upon the scrap heap of incompetency.

GLANDERS CONFERENCE IN NEW YORK.—Hon. Calvin J. Huson, Commissioner of Agriculture of the State of New York, called a conference on glanders at the office of the second Assistant Commissioner in New York City, on January 17. Twenty veterinarians were in attendance, also representatives from two of the leading horse marts. The first side of the question attacked was the *causes* of the prevalence of glanders, especially in Greater New York. Some of the causes cited were the large number of horses in our streets, the crowded conditions of our stables, their unsanitary condition, public watering troughs, the indiscriminate use of glanders vaccine, and the tendency to unlawfully dispose of reactors, thereby disseminating the infecting centers. Some of the obvious *remedies* offered were the licensing of buildings used for stables, and only issuing licenses to those reaching a satisfactory standard of sanitation, systematic inspection to keep them up to that standard, the same inspection to apply to the horses housed therein, the abolition or regulation of the use of the watering trough and the restriction of the use of glanders vaccine to horses that have been shown to be free from glanders infection by the blood tests.

Another point raised as being objectionable and possibly tending to the dissemination of the disease is the delay caused by waiting for the order to destroy the animals from Albany. A remedy to this was offered in having some one in the city with power to act for the Commissioner in that capacity, to which the Commissioner cheerfully acquiesced. In fact, Commissioner Huson, by word and act, throughout the entire conference, gave evidence of the fact that he was looking for remedies to overcome this great menace to the horse population of the state, and looking mighty hard; and we hope that he got enough suggestions to aid him in amending the agricultural law, so as to be in a better position to cope with the situation.

REPORTS OF CASES.

SOME CASES ILLUSTRATING THE USES OF ARECOLINE IN ACUTE PLEURISY AND SOME OTHER TROUBLES.*

By D. D. LeFevre, D.V.M., Newark, N. Y.

Year after year we come together for the purpose of relating our experience, good or bad, so as to assist each other, and in order that we may profit one by the other's experience. It is only a short while ago, about two years I believe, that to me there was one particular trouble that I dreaded to come in contact with, namely, acute pleurisy in the horse. Well do I remember some of my cases. In the early stage they were a regular nightmare of hot applications, counter irritation and dosing with various drugs, only to be followed a little later by hydrothorax and the tedious job of tapping and drawing off of from thirty to forty quarts of water every two or three days, and next a dead horse and dissatisfied client. But it is all past now like a bad dream, and at the present time a case of acute pleurisy is approached with the same degree of certainty as a case of parturient pareces or laminitis. In fact, it is just a race or a game to scare the owner all you can; to get there just as often as you can so as to get as large a bill as you can before the patient gets well, because he certainly will get well, and no dropsy follow. And all of this comes from a little mistaken diagnosis made now going on two years ago. April 28, 1911, I was called to Harry Ford's, arrived just about dusk, and being in a great hurry to make another call did not examine patient thoroughly, though I did write down on the window casing a record of his temperature, pulse and respiration. Patient was not taken out of his rather dark stall, but it was observed in backing him up a little that he was rather stiff and sore. It was hard to get him to move. Temperature, 105; pulse, 80; respiration, 22; and the pulse was difficult to count, one of those kind where you get a couple of "struck wire" ones, then you don't get it for three or four beats, then a couple of strong ones again. Books don't describe it, they say a struck wire pulse;

* Read before the New York State Veterinary Medical Society, July, 1912.

that is part right and a bigger part wrong. In my cases of pleurisy though that I am telling you about, those that finally died (usually in the acute stage, if my memory serves me right), I had to count the pulse by osculation of the heart if I got it at all correct. I suppose you all know what kind of a pulse this was now since the diagnosis is made, but at that time I did not sense the meaning of that pulse, and just took the case to be one of founder and hurriedly gave one-half grain of arecoline and about ten minutes later another half grain; left some non-important medicine and hurried on to the next case.

Returning the next morning, April 29, and starting to back patient out of the stall he gave a distinct pleurisy grunt, and then I began to sit up and take notice that the doctor had blundered on a diagnosis, and, upon careful examination, it was found that there was absolutely no laminitis, but a very severe case of acute pleurisy. Animal was so sore through chest that he could hardly move. Temperature, 103½; pulse, 52, and respiration, 28. Notice the drop in temperature from 105 to 103½ and the drop in pulse beat from 80 to 52. I reasoned that as one dose of arecoline had not killed him perhaps another would not, and, as he had made such a big improvement, I would just chance another dose anyway, and so gave one-half grain arecoline, and in ten minutes another half grain, and in a few minutes animal began to slobber, seemed relieved of his suffering, breathed more easily, was not so stiff, moved around of his own accord; he soon laid down and apparently seemed to be comfortable on a good bed of straw in a box stall that was provided. I always give box stall, believing that it is important for the patient to secure this great but temporary amount of rest and comfort that is afforded by the peculiar action of arecoline. Next day owner told me that patient remained down nearly two hours and appeared to be quite comfortable. On that day, April 30, temperature, 102½; respiration, 15; pulse, 46. I repeated the arecoline, and again the patient laid down and appeared to take some comfort. May 1, temperature, 100.8; pulse, 36; respiration, 22. Same treatment repeated followed by same results. May 2, temperature, 101; pulse, 34; respiration, 15. Left a little nux and digitalis and discharged patient as cured, but saw him occasionally afterwards to ascertain if any dropsy occurred, and there did not.

My next case was at Christopher Stingle's. Called at ten o'clock at night, May 11. Animal had ploughed in the forenoon, but in the afternoon was found to be sick, and that night I was summoned, and found a bad case of plain acute pleurisy; tempera-

ture, 104; pulse, 70; respiration, 40. Treatment and results a repetition of the former case. May 12, temperature, 104; pulse, 68; respiration, 36. May 13, temperature, 100.5; pulse, 58; respiration, 18. Discharged as cured, and no dropsy followed. And so I might go on and mention a number of cases that I have tried this on and had the same results. But now mind you I am not saying that it cures all cases of pleurisy. I believe the drug is absolutely worthless in a case that has become at all chronic, say past two days old at the most; but since I have been using it I have not had a single case develop hydrothorax where the arecoline was used in the acute stages, say during the first twelve or twenty-four hours. And it is the same with laminitis. They all seemed to be aborted in from four to five days. Arecoline is no good if the disease has become at all chronic. My results have not been so favorable when there has been a complication of distemper, but I do believe that the drug is the most valuable one that we have in the treatment of plain acute pleurisy. I have tried it in acute pneumonia and have never seen it do any harm, and believe it gave valuable aid and cut short the acute inflammatory stage. Of course absorption had to take place slowly. I have used it in several cases of sunstroke with apparent brilliant results. The first case was a large black mare, found her lying in the road panting and struggling, gasping for breath; gave one-half grain of arecoline; five minutes later another half grain; and in twenty minutes the animal lay quietly on her breast, slobbering and nibbling at grass. In about one hour patient was up and eating grass, apparently well. A report of other cases would only be a repetition of the same story.

In blind staggers I have had only one case to try it on. This horse had been driven forty miles the day before, fed mouldy hay at night, and when I saw him the next day four men were trying to keep him in the stall. He was blind as a bat, ramming in first one side of the stall and then the other, falling down and getting up, muscles twitching and jerking, respiration stertorous; could hear him a block away. Giving medicine orally was out of the question, but I did give several half-grain doses of arecoline pretty close together. Patient now quieted down and at the end of two hours was standing quietly and appeared to be much improved. I was anxious to see elimination of the bowel content, so gave one grain of eserine, and in a few minutes all of the violent symptoms returned, muscles twitching and jerking, patient struggling and plunging around, shortly fell to the floor and died. I am now anxious for another case to give arecoline another trial,

as patient showed marked improvement while under its action. I would say that in colic, laminitis, acute pleurisy and sunstroke arecoline is my main drug, and that it is a valuable drug in acute pneumonia. I also believe that we will find it a great helper in aborting any acute inflammatory disease.

IMPACTION OF THE SINGLE COLON.

By EDGAR HEINY, V.M.D., Hattiesburg, Miss.

The subject, a 9-year-old gelding, was brought to me for treatment about 10 a. m., showing alternate colicky pains.

Symptoms: 10 a. m., pulse 60, full and bounding; temperature 102° F.; mucous membrane slightly injected; breathing accelerated and heavy, sweating; would lie down flat on side and lay quiet for a short time, roll a little, get up, stand a few minutes and repeat the performance. No flatulence and very slight peristalsis.

Treatment: Gave aloetic physic ball and also gave ½ gr. of eserine and 1 gr. pilocarpine hypodermically.

10.30 a. m.: Patient much more uneasy due to eserine and pilocarpine; passed a little flatus; repeated the eserine and gave ½ gr. of arecoline and ½ gr. of strychnine. Gave rectal injection of several gallons of warm water and soap, rectum empty, forcible straining on introducing arm into rectum.

11.30 a. m.: Patient much easier, drank a little water and nibbled at hay, would still lie down on side most of the time, but did not roll. Pulse had dropped to 50 and not so full and bounding; breathing still labored; mucous membrane about the same; temperature same.

2.30 p. m.: Patient about the same as at 11.30. Gave 2 ounces carbonate ammonia and 1 ounce powdered nux vomica in ball (Reeks). Gave rectal injections warm water and soap, several gallons, which was at once thrown off as before.

4.30 p. m.: Patient more uneasy again; breathing more accelerated; sweating; pulse 70 and full; getting up and down and rolling. Urinated; urine of high color. Gave 1 ounce of chloral and hypodermic injection, arecoline ½ gr. and eserine ½ gr. Gave rectal injection, warm water and soap. Peristalsis good.

5.30 p. m.: Patient much easier. Lying down most of time.

8 p. m.: Patient restless again. Pulse 60; breathing accelerated; temperature 102; mucous membrane about the same as

at first; peristalsis good. Gave more rectal injections. Gave 2 ounces turpentine and 2 ounces spr. nitr. ether in a quart of linseed oil as drench.

12 m.: Patient easy lying down on side; pulse 50 and strong; mucous membrane about same; breathing heavy. Patient drank considerable water. Peristalsis good. Temperature 101.

3.30 a. m.: Patient uneasy, getting up and down; rolling, sweating; breathing accelerated again; pulse 50 and strong; temperature 101. Gave 1 ounce chloral; hypodermic injection a. ecoline ½ gr. Rectal injections which were immediately thrown off. Urinated; drank a little water.

6.30 a. m.: Patient easy and standing; pulse 50 and mucous membrane slightly more injected and slightly icteric. Temperature 102; peristalsis good; breathing good. Gave rectal injection, part of which was retained some time.

January 12, 8.30 a. m.: Patient still easy, lying down on side. Symptoms about same as at 6.30.

10 a. m.: Patient rolling a little at times. All symptoms about same. Gave 2 ounces carbonated ammonia and 1 ounce powdered nux vomica in ball. Rectal injection was thrown off again and much straining on introducing arm into rectum.

1.30 p. m.: Patient about same as at 10 a. m., except lying down most of the time quietly.

5 p. m.: Patient a little uneasy at times, otherwise symptoms about same as at 1.30. Gave ½ gr. arecoline and ½ gr. strychnine. Rectal injections were thrown off again; patient urinated.

10.30 p. m.: Patient about same as at 5 p. m. Gave another ball of carbonated ammonia 2 ounces and powdered nux 1 ounce.

January 13, 8.30 a. m.: Patient much improved; seemed better all day; gave one quart linseed oil; rectal injections which were not retained. Patient drank several buckets of water during the day. Gave same treatment as day before.

Tuesday, 14, 8 a. m.: Patient a little uneasy again; pulse 70, but still strong; breathing labored; temperature 102.5; mucous membrane about same as day before. Gave carbonated ammonia and nux ball.

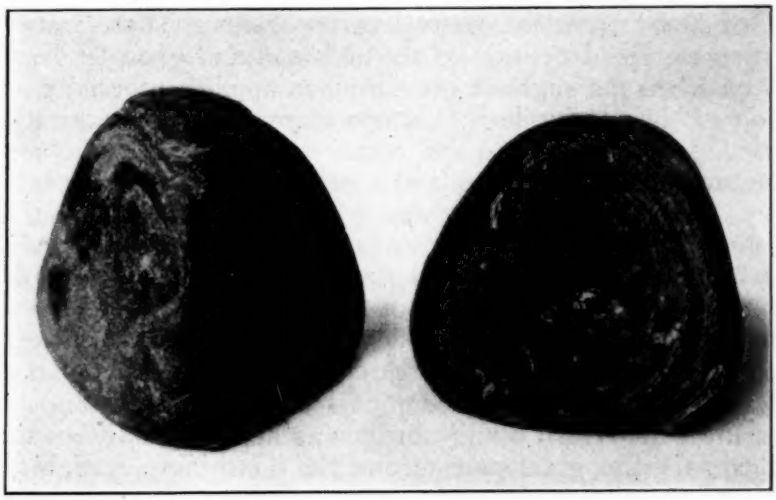
12 m.: Patient same as at 8 a. m. Drank a bucket of water. Lying down most of time; rolled a little at intervals. Gave rectal injections which were immediately thrown off; pulse about 70 and strong and regular; temperature 102.5; mucous membrane slightly more injected.

4.30 p. m.: Patient a little more uneasy; pulse 80, but still full and strong; breathing faster and labored; temperature 104.2.

Gave 1 gr. arecoline and ½ gr. strychnine. This produced a very distressing condition to patient. There was extreme salivation and attempts at vomition, and patient did emit quite a little sour smelling frothy material from nostrils at these attempts; sweating and nervous trembling. Did not lie down and roll. After the effects of the arecoline passed off, patient drank a bucket of water and seemed easier and brighter for two hours.

8 p. m.: Patient lying down; rolling a little at intervals; pulse 72, but still strong, although not so full, seemed smaller but regular; temperature 105; breathing very labored, and patient seemed much distressed. Patient died at 10 p. m.

Wednesday, 11.30 a. m.: Held post mortem. Carcass had scarcely swollen at all and was not very stiff. On opening abdomen there was—no doubt formed after death—quite a little straw-colored fluid in cavity from slight peritonitis. There was very slight inflammation of intestines. All other organs normal. On examining single colon, came across two hard objects, about midway of colon. On opening up colon I took out two triangular-shaped calculi. One has a perfect triangular base and three triangular sides and weighs 1¾ pounds. The other has a rectangular base and four triangular sides like a pyramid, and weighs 2¼ pounds.



History: This horse was 9 years old, weighing 1,200 pounds, was shipped to Meridian from Fort Worth, Texas, and sold to the Meridian Fire Department and had been in their service 3½

years. Had never been affected with colic up to this time. He had been off his feed and had a depraved appetite for about two months; would eat dirt and wood, and would paw the plastering off an old wall and eat it. His bowels had been irregular for about two weeks, and an attendant told me he had had only two small actions the day and night before he was brought to me for treatment.

TWO CASES OF METRO-PERITONITIS IN THE BITCH.

By Robert W. Ellis, New York, N. Y.

Two cases presenting practically identical symptoms and reaching fatal terminations in about the same length of time, having recently occurred in my practice within five days of each other and died within three days of each other, I report them for any benefit a brother practitioner may derive from them.

Case 1.—A female pug dog, ten years old, had never been bred. Had terminated a rutting period about two weeks prior to the development of the symptoms that caused the little animal to be brought in for treatment. The most noticeable symptom, and the one which alarmed her mistress most, was a profuse flow of blood from the generative apparatus. There were, in addition to this, distention of the abdomen and great tenderness evinced when the slightest pressure was applied, especially over region of the uterine horns; temperature 103 2/5, respirations hurried, appetite impaired and occasional vomiting. *Diagnosis:* Inflammation of the uterus and uterine horns. *Treatment:* A heavy coat of antiphlogistine applied hot over the surface of the abdomen, covered with absorbent cotton and bandaged, and internally ½ grain of ergotin at three-hour intervals. Two days later found patient much improved in spirit, apparently not in pain, eating a little, but still flowing. At this visit gave hot douche per vagina, with one chinosol tablet to two quarts of water. A considerable amount of blood in various stages accompanied the return flow from the vagina, and the little animal seemed to suffer great pain during the douching. Antiphlogistine and ergotin continued. On returning to the case the following day, the owner reported a great decrease in the flow of blood, and the dog seemed much improved. The hot chinosol douche was repeated, and this time the return flow of water was

scarcely changed—just a slight coloring in the first few jets of it; but the patient seemed to suffer pain while giving it. On visiting the patient the following day, my clients happily informed me that the haemorrhage had been entirely controlled, and that the little dog seemed much better, but at times vomited after eating. They seemed to feel that that was the only abnormal symptom present, and felt very hopeful of a speedy recovery. That symptom was prescribed for, and the patient was not seen again until the third day thereafter, when I was called because of a return of the pain. I found the little animal panting and evidently in great distress; ordered renewal of hot applications; prescribed anodynes, and gave a grave prognosis. In less than seven hours from that time my patient was dead, having seemed to respond to the treatment up to the last hour, when she became suddenly worse and collapsed. *Post mortem:* What the post mortem revealed, made me wonder how it had been possible for the little animal to live as long as it had, cheerfully wag its tail when spoken to in a kind voice, and to apparently improve for a few days. On making an incision into the abdominal cavity a reddish muco-purulent discharge flowed copiously from the opening; after this had subsided, the opening was enlarged and the digestive organs removed *en masse* (leaving the generative organs intact) and examined from end to end carefully upon the table, and nothing unusual was noted. The generative organs were then detached and placed upon the table for examination. The uterus and cornuae presented the appearance of pregnancy; their general calibre was enlarged, and at regular intervals dilated, so as to give the appearance of containing foetuses; but upon manipulation were easily compressible, and on being opened were found to be filled with the same muco-purulent fluid that had flowed from the abdominal cavity on opening it. The entire mucous membrane lining the uterus and horns, and the peritoneum enveloping those organs, was literally "eaten up" with the inflammatory process that had been responsible for the symptoms presented.

Case 2 was a female Maltese terrier, nine years old, had never been bred, and presented *all the symptoms* of case 1, except that there was a nasty discharge from the vulva instead of the flow of blood when the case was presented. Vaginal douches were ordered, but were not given (the owner not being in a position to carry out that part of the treatment); course and termination the same as former case. No opportunity for post mortem was afforded in this case.

EARLY DEVELOPMENT OF ASCITES.

By the Same.

A small female bull pup, four weeks old, was brought to the office, presenting a very peculiar spectacle. This little animal weighing approximately not more than three pounds, had its abdomen distended to such an extent as to give it a grotesque appearance. Laid upon its back, it resembled more than anything else a fat frog. A small trocar being introduced, sixteen ounces of fluid was drawn off. The weight of the fluid withdrawn, representing one-third of the approximated weight of the pup. The pup was not returned for treatment, and the outcome is not known.

GORE FROM A COW—IN A MARE.*

By Chester L. Blakely, M.D.V., Augusta, Me.

The subject was an eight-year-old mare, small, and worth about $125, and was hooked by a cow in the groin on the median line very close to mammary glands. The owner telephoned me that two or three feet of her intestines were hanging out, and would not listen to anything but that I should go to his place as soon as possible. I instructed him to tie the mare so she could not lie down, and to get a clean sheet, soak in hot water that had been boiled, and wrap it around her securely to keep the intestines warm and free from dirt, and I arrived at his farm about two hours after accident had occurred. I gave a large size tablet of H. M. C. containing 2½ grains of morphine, and as soon as we could get help I cast the mare and removed the sheet. On washing bowels off I found them free from injury and very little discolored. The bowel had escaped through a hole 3 or 4 inches long and formed a sac half the size of my head between skin and muscular tissues, and 2 to 3 feet protruded. I enlarged both the outside hole through the skin and inside through the muscle and peritoneum, and replaced the bowel as carefully as possible. I then sewed muscle and peritoneum with heavy silk suture (on account of lack of confidence in my supply of catgut), and left long ends outside of the knots. I then packed the sac between muscles and the skin with carbolated gauze and stitched the skin securely, leaving small end of gauze exposed and hanging out slightly.

* Presented to the Maine Veterinary Medical Association, Augusta, January, 1913.

We then allowed the mare to rise, and I advised him to keep her up for twenty-four hours or more, and feed soft feed, and to watch very carefully. On the third day I again visited the mare and found her apparently as well as she ever was. I removed the gauze and washed with solution of lysol, using fountain syringe, peroxide, carbolated gauze, etc. I left the fountain syringe, lysol, solution and peroxide and instructed the owner to dress it again on the second day and thereafter every day. Several of the silk sutures sloughed away after first week, and in two to three weeks the wound healed as clean and smooth as it possibly could. I saw the mare for the third time on about the fourteenth day and found her free from fever or any signs of infection. The case terminated very satisfactorily, recovery being rapid and complete.

UNDER RESTRICTIONS: In view of the fact that at the December meeting of the United States Live Stock Sanitary Association the impression was received by many members that there were no restrictions on the application of the tuberculin test by laymen in Wisconsin, the following reply to an inquiry by Secretary Ferguson, which is self-explanatory, is here reproduced:

"Dear Sir: I acknowledge herewith receipt of your letter of December 19, 1912. In reply will say that a Wisconsin state law allows laymen to administer the tuberculin test under certain restrictions after passing an examination given by the Live Stock Sanitary Board. Permits for such testing are issued subject to revocation at any time by said board. In no case are tests made by laymen approved for interstate shipment by the State Veterinarian of Wisconsin, nor have they ever been. The matter of approving certificates of health for interstate shipments is wholly in the hands of the State Veterinarian.

"Very truly yours,

(Sgd.) "GEO. WYLIE,

"President, Wisconsin Live Stock Sanitary Board."

WELCOMED IN THE PHILIPPINES.—A subscriber in the far-off Philippines says, in renewing his subscription: "The benefits gained by a careful perusal and study of contents of the REVIEW are too numerous to mention; and the monthly receipt of each copy is looked forward to with supreme anticipation."

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

RUPTURE OF THE DIAPHRAGM [*A. T. M.*].—A six-year-old gelding, while crossing a railroad track, had the right hind shoe jammed in the flange of the rail and so tightly fixed that he could not withdraw it. He threw himself down, and when his foot got loose he got up very lame. He had a bad contusion of the left shoulder and partial rupture of the muscles of the right hip. He was put in slings and placed under treatment. Two days after he was quite paralyzed on the shoulder but improved behind. A day or so after his respiration became distressed—the animal refused food and died in collapse. Post mortem shows great bloody extravasation in the hip and shoulder and a rupture of the muscular part of the diaphragm through which the bowels had entered into the chest.—(*Vet. Record.*)

AN INTERESTING CASE OF TYMPANITIS [*W. Penhale, M.R.C.V.S.*].—Two-year-old heifer is very much "blown." Trocar is resorted to and laxatives prescribed. The condition was such that the canula had to be left permanently in position. After some time the appetite and rumination (which had first returned to normal) began to fail. On examining the part where the puncture had been made, it was found that the rumen had become firmly attached to the peritoneum and abdominal walls, at the place occupied by the canula, which was then useless. An incision was made through the abdominal muscles, as in case of rumenotomy, passing the hand into the abdominal cavity and tearing the adhesions existing between the peritoneal covering of the rumen and the walls of the abdomen, thus liberating the organ from these attachments. An india-rubber tube was passed into the rupture of the rumen and secured there with a stitch and its free end passed through the external opening in the muscles. By this way any tympany that might otherwise occur was prevented. Appetite and rumination soon returned and the heifer progressed favorably.—(*Vet. Rec.*)

YEW POISONING IN CATTLE [*E. Hicks*].—Out of a herd of cattle six have died. The majority of the beasts that remained were showing signs of tympanitis. Post mortem of the dead ones confirmed the diagnosis of yew poisoning. The symptoms manifested after a few hours were: Marked dullness, depression, salivation, loss of appetite, tympanitis, constipation followed by diarrhoea. Faeces were foetid, green, and in one case mixed with twigs of yew tree. In some cases there was dyspnea. Death was quick with a few animals. Fifteen animals in all died out of about forty. The treatment for the first day was sulphate of magnesia, bicarbonate of soda, carbonate of ammonia in water —and the next day liq. ammo. acet., bicarb. of soda and extract of belladonna.—(*Vet. News.*)

SALIVARY CALCULUS IN STENON'S DUCT—REMOVAL [*Capt. E. P. Argyle, A.V.C.*].—A polo pony has a calculus forming in the parotid duct, which was left without interference for several months, to allow the animal to end the polo season, as the case did not appear urgent. After four months the swelling of the duct had become larger and harder, the parotid was œdematous, the animal showed pain and difficulty in opening the mouth, and as there seems to be no possibility to move the stone in the canal its removal was decided. Anesthesia was realized with repeated application of solution of cocaine, and with the animal cast a careful dissection of the skin was made, isolating it from the tissues underneath. The duct was exposed, incised, a blunt directory introduced in it made the stone loose, when it was extracted. It weighed 40 gr. and measured 2.6 centimeters at its widest part. Recovery was uneventful in comparatively short time.—(*Vet. Record.*)

BACTERIAL NECROSIS OF THE LUNGS OF A HORSE [*Prof. G. Wooldridge, F.R.C.V.S.*].—Black gelding had abscess of the coronet of one hind foot, very painful. After two or three days others are formed in the vicinity of the pastern and fetlock. Pulmonary complications set in and death followed in a few days. Examination of the lungs shows a large number of grayish nodules of various size. They were more numerous at the apex of the lungs and looked them as small tumors. On cutting the lung tissue was somewhat œdematous. On examination of the scraping of one of these tumors the bacillus of necrosis was democrated.—*Vet. Journ.*)

TREATMENT OF FOLLICULAR MANGE IN DOG WITH AND WITHOUT VACCINES [*R. H. Smythe, M.R.C.V.S.*].—Record of the treatment applied to six dogs suffering with follicular mange, three receiving vaccines and three without it. One of the first got well, had a relapse and was destroyed. A second case also treated with vaccine improved, got distemper and died of bronchopneumonia. A third case got quite all right, became fat and lively. He, however, died of unknown cause. A fourth case received a polyvalent vaccine, but was afterwards treated by ordinary skin dressings. Had to be destroyed. The fifth case recovered without vaccine, also the sixth with being painted daily with iodine and bin-iodide of mercury in alcohol.—(*Vet. Journ.*)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

CURIOUS PATHOLOGICAL CASE [*Mr. A. Chazeau*].—Half thoroughbred, 6 years old, this mare is the daughter and a sister to others which have always been rebellious to being harnessed. She has been broken with much difficulty and finally became quiet, not afraid and gave satisfactory work. One afternoon while driving she is taken ill on the road, stiff on her hind quarters and has profuse perspiration. Put in a stable she passes red urine containing large clots of blood. The tail is amputated as a local bleeding and the animal is walked home. The next day she is in perfect condition. Several months after it is noticed that when the crupper is passed under the tail, while she is to be harnessed, she staggers, falls as a mass and then rises alone. These manifestations returned every time at the same moment. She stands quiet for all the other parts of the harness, but staggers and falls suddenly when the crupper is passed under the tail. The eyes are normal, no saliva flows from the mouth. Again after a few seconds the animal gets up alone. The diagnosis is uncertain as the symptoms of loss of power are not explained. Prognosis serious. Was the first attack one of mild azoturia, which left the spinal cord in a pathologic condition? At any rate treatment was attempted. Massage of the lumbar region, irritating applications, bromide of potassium, phosphate of lime, sedative sachets, even very severe blistering. Temporary relief was obtained, but after a short time all the symptoms returned. Actual cauterization and electricity were not tried—perhaps they were the proper indications. The animal was sold.—(*Rev. Gen. de Med. Vet.*)

PROSTATIC HYPERTROPHY OF DOG [*Messrs. L. and E. Lepinay*].—Nine-year-old dog has a perineal tumor, some urinary troubles, difficult and painful micturation, retention of urine. On the perineum the tumor is quite big, soft and fluctuating; it gives the impression of a distended full bladder. Rectal examination confirms the diagnosis of hypertrophied prostate. The owner will not allow an operation. The dog is destroyed. At the post-mortem the bladder was found in its normal condition, but the prostate, enormously large, has at its inferior part on the right a large diverticulum which communicates with the urethra and where the urine collected. The histological examination reveals its nature, of adenoma.—(*Rev. de Pathol. Comp.*)

ENCEPHALITIS FROM UNSUSPECTED STRANGLES [*Mr. Bonet, Sanitary Veterinarian*].—Six-year-old Anglo-Arab stallion has no record of sickness. He is taken sick while at work, suddenly drops on the ground, rises and continues walking home. Put in a box, he is prostrated, head down, conjuctiva and pulse are normal; the respiration is diaphragmatic, slow, jerky and difficult. He refuses all food. Temperature 40°6 C. drops the next day to 37°8 C. The second and third day the animal is sleepy, resting against the wall, the back arched, neck is flexed, eyes half closed. Thorax and abdomen show no lesion. Rectal examination is difficult, as the animal rebels against it. Percussion of head gives rise to pain. Digestive functions are stopped, no appetite and constipation. On the fourth day agony sets in and lasts a few hours. *Post mortem:* Every organ healthy except the brain. The left hemisphere is larger than the right and contains a large abscess containing dirty white pus. Smaller collections are found with creamy yellowish suppuration. The right cerebral lobe shows a center of encephalitis. Streptococci were found in the lesions in large quantities.—(*Ibid.*)

PARTURIENT APOPLEXY FOLLOWING ABORTION [*Mr. L. Paris*].—This is a rare case, as the author, in a large practice of obstetrics since ten years, has never before observed one. A nine-year-old Normandy cow had an attack of milk fever once, which was relieved five hours after the treatment of Schmidt-Even. Lately she is again pregnant and is due in two months. She gives 8 litres of milk. But now the secretion subsides, the udder becomes soft. One morning she aborts a female fœtus. An hour later she is dull, her appetite is gone, rumination stopped and she staggers in walking. She lays in sterno-abdominal position, the neck bent

in S, she moans, makes some expulsive efforts, glairy purulent mucous at the vulva, temperature 39° C. Vaginal exploration reveals the presence of another fœtus, which is extracted easily. The envelopes are removed. The cow is made to get up, walks a few steps and suddenly drops and lays in complete lateral decubitus. The treatment of Schmidt-Even is applied and five hours after the cow has recovered.—(*Rec. de Med. Vet.*)

Sulphate of Hordenine in Canine Enteritis [*Mr. Charmoy, Adjunct Prof.*].—After a minute history of the drug with which the author has experimented he gives the record of 15 cases of enteritis which he has treated and in which he has obtained 13 complete recoveries, whether the cases were simple diarrhoea or dysentery. The treatment consisted in the subcutaneous injections of sulphate of hordenine in doses varying between 2 and 5 centigrams for each kilogram of the weight of the animal. One or two injections only had been required except in two patients, when four injections were required.

The author concludes: 1. Sulphate of hordenine, extract of the products of barley, is a medicament very efficacious in the treatment of enteritis with dogs. 2. It can be given sub-cutaneously in doses varying between 2 and 5 centigrams per kilogram of the animal, the maximum of the effects being generally obtained with an average dose of 3 to 4 centigrams. 3. The symptoms produced are: Immediately after the injection the animal is quiet, the respiration is accelerated, nausea occurs, vomiting that lasts a few minutes, then gradually all subside. 4. Practically there is no fear of toxicity.—(*Rec. de Med. Vet.*)

ITALIAN REVIEW.

By Prof. A. Liautard, M.D., V.M.

Abdominal Localization in Distemper [*Dr. Germani*].—A six-year-old horse has sore throat and distemper. He is treated with antistreptococcic serum, receiving every day for five days 30 c.c. of the serum, divided in two doses, twelve hours apart. The sixth day the manifestations of the throat have disappeared, and the temperature is normal. A week later, relapse takes place. The horse has broncho-pneumonia, which with antistreptococcic serum injections is relieved in ten days. The animal resumes work. Twenty days after he has violent

colics and dies in a few hours. At the post mortem a large distemper abscess was found in the thickness of the intestinal coats, in the last portion of the small colon. It partly closed the intestine. Similar sequelae of distemper have already been recorded. They prove the possibility of abdominal localizations in distemper, and these may always be suspected, especially in young army horses, after recovery from an attack of distemper.—(*Il. Mod. Zoo. & R. G.*)

RUPTURE OF THE SPLEEN IN A HORSE [*T. Favero*].—Heavy draught horse, seven years old, is subject to colics since several months; they appear every twenty days and are accompanied with general digestive troubles. One day he is taken with severe symptoms, lays on the left side, struggles violently and dies. At the post mortem it was found that the horse had died because of internal hemorrhage by rupture of the spleen near the median line, due probably to passive congestion of the organ. The liver and kidneys are anemic, the stomach considerably distended with the mucous membrane, ecchymotic in places. The intestines present the same lesions. The diaphragm was torn near the great convexity of the liver—probably a post-mortem lesion.—(*R. Gen. & Il Moderno Zoia.*)

NEPHRO-LITHIASIS OF THE HORSE [*G. Blanchedi*].—This is the record of lesions found at the slaughter of a 16-year-old horse. The right kidney is represented by a large pouch, looking as made of connective tissue. The cortical and medullary substances are gone. In the pouch there is a muriform calculus, 7 centimeters long and 5 wide, weighing 155 grams. It is made of carbonate of lime with some oxalic acid, phosphates and probably hippuric acid. The left kidney was much hypertrophied.—(*Ibidem.*)

606 IN DOURINE [*T. Favero*].—It was tried with experimental dourine of dogs. Six dogs were used, one kept as control. They were infected by intraperitoneal inoculation of 10 c.c. of virus, taken from a dog after several passages by guinea pigs. The 606 was injected in the veins at doses of 12 centig, for each kilogram of the weight of the animal. The injection was made simultaneously or curatively. In this last case either during the period of incubation or after the apparition of the parasites in the blood.

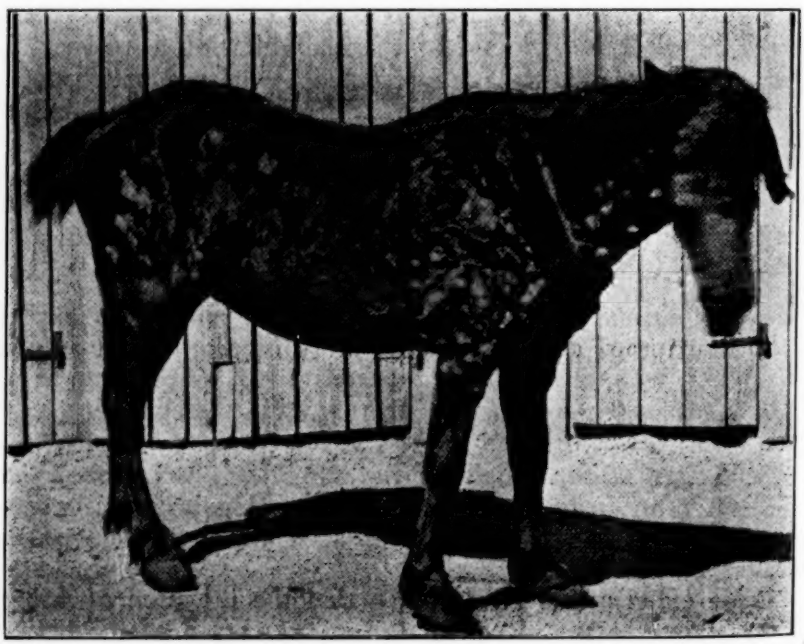
These experiments have shown that the injection of 606 at the same time as the virus, or during the period of incubation,

prevents the evolution of the disease, by destruction of the parasites. 606 has a trypanolitic action, marked and immediate, which is manifested even after the apparition of the parasites in the blood, even when they are in great number. In one animal, treated during the period of infection and expected to die soon, the symptoms subsided, and after twenty days the dog was well. The conclusions of the author are that intravenous injections of 606 have a very active action upon trypanosum equiperdum in dogs in arresting the infection, if injected at the same time as the virus, or during the period of incubation, and in rapidly destroying the parasites either at the onset of the infection, during its course or even when it has assumed a certain severe character.—(*Clin. Veter. R. G.*)

GERMAN REVIEW.

By JOHN P. O'LEARY, V.M.D.

A PHOTOGRAPH WITH TEXT [*A. Kragerud*].—The photograph of this horse shows numerous lymphatic nodules and is accompanied by the following report:



On superficial examination the disease somewhat resembles glanders. The body of the animal is covered with a number of round nodules, partly arranged in serial order, varying in size from a hazelnut to a walnut. From both nasal cavities a grayish, serous discharge appears, and upon both sides of the septum nasi small, round erosions are visible. The appetite of the animal is good; no fever present; and the general health is not disturbed. At the autopsy the lesions on both sides of the nasal septum are somewhat inflamed. All lymph glands in the body are swollen. Apart from the pathological condition mentioned, no other morbid changes are visible.

The history of this case is as follows: The owner states that the horse has been slightly affected for the last three years. At one time a veterinarian treated the animal for a mild attack of strangles; a few nodes appearing at first under the skin, these nodes increasing in number and size. A year and a half later a slight nasal discharge appears. Within the last three months the nodules underneath the skin, and the nasal discharge increased.

Apparently we have to deal with a case of lymphadenitis.—(*Norsk Veterinaer-Tidsskrift,* XXIV, Arg. Nr. 8-9. August, September 1912. Seite 227-228.)

STATISTICS CONCERNING INOCULATIONS FOR THE CURE OF RABIES IN THE PASTEUR INSTITUTE FOR THE YEAR 1911 [*S. Valia, Paris*].—During the year 1911, 342 persons were inoculated as a preventive of rabies in the Pasteur Institute. All were cured. Comparative figures for the previous years show that the mortality among human beings since the year 1886 (0.94 per cent. mortality) has gradually decreased, until it reached in the present year (1910) 0 per cent.—(*Deutsche Tierärztliche Wochenschrift,* No. 50, 1912.)

DECISION OF THE ENGLISH "ROYAL COMMISSION ON TUBERCULOSIS" CONCERNING THE RELATION BETWEEN HUMAN AND ANIMAL TUBERCULOSIS [*Titze*].—In the human subject three groups of tubercle bacilli are found; namely, the type humanus, the type bovinus and a third group which presents some deviations from the two first types. The type bovinus is found only in cattle and horses. In swine the commission found in 59 cases among these animals 50 harboring the bovine type, 3 animals the human type and one infected with the bovine and avine type. In a gnu, a monkey, a chimpanzee and antelope the

human type was found. The commission considered the bovine and human bacillus as varieties of one and the same species. Animals and men infect one another reciprocally. Cattle are not wholly immune to the human type of bacillus, and also the adult human being can be infected with the type bovinus, which can even produce pulmonary tuberculosis in man.

In almost 50 per cent. of the primary fatal abdominal cases of tuberculosis in children the bovine tubercle was found. Similarly, tuberculosis of the cervical glands of children and youths for the most part. The organism of lupus in 6 cases out of 20 was traced to the bovine type of bacillus. These infections are due in reality to the use of cow's milk containing tubercle bacterium. The government is therefore induced to adopt more stringent measures with regard to the control of food stuffs.—(*Deutsche Tierärztliche Wochenschrift,* No. 19, 1912.)

Contribution to the Arsenical Cure [*Military Veterinarian Karl Halasi*].—After a series of military manœuvres some horses remained in poor physical condition, notwithstanding that they were given a period of rest and increased rations. The author made some experiments with arsenical preparations. He gave daily in increasing doses from 0.20 grams to 0.80 grams of natrium arsenicum, continuing the treatment for 10 weeks. Later he treated 14 other horses, which were in poor condition also. In these latter cases the initial dose was 0.20 grams, increased every second day by 0.05 grams until the maximum dose was reached, 1.20 grams. The arsenic was administered in each instance with bread before the noon-day feed. The effect was as follows: In the first case the horses increased in weight from 12 to 20 kilos. In the latter cases the horses increased in weight on an average of 16 kilos and maintained their condition during and after subsequent manœuvres.—(*Allatorvosi Lapok,* 1912, Nr. 39.)

Acetonaemia in Cattle [*Dr. Jonk, Bern*].—The author observed frequently in cattle a form of indigestion, which occurred about fourteen days post partum. The malady was characterized by the formation of acetone and the excretion of this matter through the expired air, urine and milk. The circulatory apparatus and pulmonary organs presented nothing abnormal. The bowels were sluggish, the faeces had a dark green color and a sticky consistence and appeared glazed with mucus. The

sensorium was somewhat dulled. Jonk successfully treated this disease with the following remedies:

Extract. Aloes	25-30	grammes
Natrium Bicarbonate	350-400	"
Natrium Sulphate	75	"
Rad. Gentian	75	"

Misce, fiat pulv. One-third part to be given three times daily.

An accurate diagnosis can only be established by a chemical examination, of which there are several methods employed. The simplest test is that for the urine, practised by Blumenthal. Three to five drops of a freshly prepared dark red aqueous solution of nitro-prussiate of sodium are mixed with five cubic centimeters of urine, to this is added drop by drop a 15 per cent. solution of potassium hydrate until the dark red color disappears. After the lapse of an hour the red color changes to a greenish blue. In the same manner milk can be examined; the resulting color is then a greenish yellow. If a concentrated solution of acetic acid is added immediately and the mixture shaken, with the precipitation of the casein the solution assumes a rose red color. Further it may be remarked that the expired air, particularly when the mouth is opened, also the surface of the body, the milk and the urine emit a typical sharp, disagreeable odor. The cause of the accumulation of the enormous quantity of acetone is due, in the opinion of Jonk, to the disintegration of the albumen. Without doubt the gastric glands participate in the etiology of the disease.—(*Münchener Tierärztliche Wochenschrift*, 1911, No. 19 and 20.)

VETERINARIAN SUSTAINS HEAVY LOSS BY FIRE.—The building containing stable, hospital and office of Dr. C. E. Burchsted, Concord, N. H., was recently destroyed by fire, in which the doctor lost his beautifully equipped office, including his diploma and many valuable dachshunds, all prize winners, two of which were entered for the dog show in New York, February 20-21-22. The doctor has our sincere sympathy and, we are sure, that of every one.

A PROGRESSIVE VETERINARIAN in Nebraska writes: "Enclosed find draft for $3 for the '*Good old* REVIEW'; have taken it since three months before I graduated and could not live without it. Yours for best success, etc."

CORRESPONDENCE.

GLANDERS.

BROOKLYN, N. Y., February 9, 1913.

Editors AMERICAN VETERINARY REVIEW:

GENTLEMEN—The AMERICAN VETERINARY REVIEW is always a welcome visitor, especially since I can claim to be one of its founders. I take pleasure in watching its substantial growth, which is ample proof of its adaptation to the wants of the profession.

Your reports of society meetings are always interesting reading, particularly to non-society members. I take it for granted that your report of the December meeting of the Veterinary Medical Association of New York City is correct.

The chairman of the committee appointed to investigate the case of Mr. Benj. H. Mount, who was supposed to be infected with glanders, concluded "that the patient did not exhibit any positive symptoms of glanders," as per said report upon the case.

Now, gentlemen, take the history of this case and the clinical lesions exhibited: they could lead to one conclusion only, *i. e., glanders.* With such history and lesions, what else could it be! But bide a wee.

In your January number it is reported that Mount had developed a positive case of glanders. From the history and lesions indicated there could be no other termination.

As to the views expressed and discussed at the December meeting, of cases of glanders and farcy making complete recoveries: in my sixty years of active practice I never have known of an animal affected with glanders or farcy to recover to a normal condition.

One member, in his official capacity, relates that he had made post mortem examinations on two cases that had external farcy lesions, but no visible *internal* lesions. In the name of equine pathology what did he expect to find?

Both the medical and veterinary professions in Brooklyn have had ample opportunities of becoming familiar with the etiology and pathology of equine glanders. There is no other city where

the scourge is so prevalent and widespread. It is more prevalent to-day than it was twenty years ago, taking into consideration the relative number of horses.

The increase is what might be expected, when one knows the method of stamping out adopted by the local authorities. Veterinary surgeons are expected to report all cases of contagious diseases in animals to the Department of Health, including glanders and farcy. Then the Department veterinary expert visits said animal, sometimes the same day, but frequently not until the elapse of four or five days, in order to give the veterinary inspector from Albany time to get here and confirm the diagnosis. The affected animal all this time is allowed to cohabit unrestricted with the other animals. No isolation of said suspected case during the interval.

The inspector makes no further examination, though there may be other animals showing pronounced clinical lesions. He is in too great a hurry. Then follows a form of disinfecting the individual stall occupied by the condemned animal. He calls for a pail of water, into which he drops so many tablets of bichloride of mercury, with which he sprinkles said stall, using, usually, an old broom. This so-called disinfecting extends also to the feed remaining in the stall, which may be used by the next tenant. The disinfecting of the harness and blanket used by the affected animal is completely ignored.

Such being the system employed for the stamping out of glanders, are you surprised at its perceptible increase in this city?

The vital point is that the local authorities have in their employ so-called members of my profession who, for the past twenty years, have sanctioned these lax and ineffectual methods, resulting in discredit to the veterinary profession.

Those in charge of the stamping out of glanders must give more attention to the life history of this germ which propagates this disease. It has a latent period, in the system, of undefined duration, showing no clinical symptoms, *at which time the mallein test should be used in every case* of animals that have cohabited with affected cases; mallein being, in my experience, a reliable test.

Until the great importance of a test during this latent period is realized there will continue to be a criminal propagation instead of a wholesome stamping out of this disease.

Some years ago I had the honor of being appointed veterinary inspector by Governor Robinson in stamping out bovine contagious pleuro-pneumonia in this state, and was strictly successful

within a period of two years; but certainly not by such methods as the local authorities of to-day have been using in stamping out glanders.

Yours truly,

L. McLEAN, M.R.C.V.S.

THE SECRETARY OF WAR DECIDES THAT VETERINARIANS MUST TAKE THE ANNUAL OBSTACLE RIDE.

Editors AMERICAN VETERINARY REVIEW, *New York:*

Early in December, 1912, the Secretary of War decided that such portion of a previous order excusing chaplains and veterinarians from taking the annual obstacle ride be rescinded as to that part pertaining to veterinarians, and that commanding officers would have the veterinarians take such ride with the officers of the regiment.

This decision will no doubt be taken with disfavor by some of the Army veterinarians, but it seems that we should all be well up in matters pertaining to horsemanship as well as to their medical attention, and it is no greater hardship for the older veterinarians than the older line officers.

It is true the Army has become very enthusiastic over jumping and steeplechasing, but it is not without its good results, since it is bound to make better horsemen and bolder riders.

Now that we are recognized in this matter I think it is up to us to take up this work cheerfully and show the line officers that we are their equal at least in horsemanship.

Both veterinarians of one regiment were ordered out after this decision was rendered and made the ride, finishing within the time, and did it in as good form as any officers of the regiment.

The ride as now prescribed consists of a course three miles long over rolling country, with nine obstacles, consisting of ditches, logs, rail fences and brush hurdles arranged three to each mile, and the time limit is eleven minutes. This is not fast time, just an extended gallop, and a horse well conditioned can make it easily in eight or nine minutes, as has been proven by the tests made since the ride was inaugurated.

(Signed) ARMY VETERINARIAN.

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VETERINARY TOXICOLOGY.

VETERINARY TOXICOLOGY, by G. D. Lander, D.Sc., F.I.C., Professor of Chemistry and Toxicology, Royal Veterinary College, London. More than 300 pages, with 39 illustrations. Chicago, Alexander Eger, 1912.

This excellent work of Professor Lander, the bulk of the analytical data of the text of which is based upon cases of poisoning coming under his observation during the past nine years, is of inestimable value to practising veterinarians. The author has also done a tremendous amount of reference work, so that the compilation includes the findings of an imposing list of authorities on the subject. Thirty pages are devoted to the introduction of the subject, in which the definition of a poison, general chemistry of poisons, conditions governing the action of poisons, variations of action due to species, variations of action due to the individual, classification, common causes of poisoning, kinds of poisoning, diagnosis of poisoning, treatment, post mortem and chemical analysis are severally treated. This is followed by chapters on Mineral or Organic Poisons, under which arsenic, antimony, lead, mercury, copper, zinc, silver, barium, chromium, iron, phosphorus, ammonia, strong acids and alkalis, common salt, nitrates, sulphur, halogen elements and their compounds, and carbon monoxide are treated in the order named, and on Organic Poisons and Drugs, in which hydrocyanic or prussic acid, strychnine, morphine and opium, eserine or physostigmine, pilocarpine, ipecacuanha and emetine, gelsemium, veratrine, curarine, yohimbine, cocculus indicus, cannabis indica or Indian hemp, santonin and wormwood, turpentine, camphor and essential oils, oxalic acid, alcohol and cantharides are considered in the order given. One hundred and thirty-six pages are then devoted to poisonous plants, in which the 39 very excellent illustrations occur. In discussing these poisonous plants, the grains per body weight in the horse, ox, sheep, goat and pig are given in each. The closing chapters treat of Chemical Toxicology and Ptomaines. The author's very clear manner of expression renders the profound and complex subject, which he presents in *Veterinary Toxicology*, pleasant and comprehensive reading, which is destined to make the work popular with students and practitioners. The publisher has executed his part of the work well, and given the book a quiet elegance in the binding, in keeping with the weight of the author's subject.

ANIMAL PARASITES AND PARASITIC DISEASES.

ANIMAL PARASITES AND PARASITIC DISEASES, second edition, revised; by B. F. Kaupp, M.S., D.V.S., Professor of Pathology and Parasitology, Veterinary Department, Colorado Agricultural College. Late Professor of Parasitology, Kansas City Veterinary College. Late Veterinary Inspector, Bureau of Animal Industry, United States Department of Agriculture, etc. More than 200 pages, with 120 illustrations. Chicago, Alexander Eger, 1912.

This excellent little work is one of the most useful reference books for the practitioner in type; because it embraces a subject upon which the average practitioner gets rusty, especially in terminology, differentiation and specific treatment, after a few years in routine practice, and finds a work of this kind very convenient to refer to. By its use in that way a practitioner can treat parasitic conditions much more satisfactorily to himself and his clients, and can keep up on a branch of medicine that is as important as it is intricate. The work is concise and is divided into four chapters as follows: External Parasites, Internal Parasites, Protozoa and Preparation of Specimens. The names of the parasites are arranged in tabular form at the beginning of each of the first three chapters. In the first column of the table will be found the *Branch;* in the second the *Class;* in the third the *Order;* in the fourth the *Family;* and in the last the *Genus* and *Species,* names by which we know the parasites. So that by reference to this table, one can readily trace each species down through the classification to the starting point, the *branch.* The facts about each are noted under headings: Synonym, Distribution, Life Cycle, Animals Infested, Conditions Produced, and Treatment, when treatment is indicated. The photomicrographs used in illustrating the work were made by the author with an ordinary kodak placed over the ocular lens of the microscope, giving a time exposure, and are excellent. The concise information and arrangement for ready reference makes *Animal Parasites and Parasitic Diseases* indispensable, alike to the student and the practitioner of veterinary medicine. The paper is smooth, the type clear and sharp, and the binding in red and gold very pretty and a credit to the publisher.

THE BOOK OF LIVE STOCK CHAMPIONS.

THE BOOK OF LIVE STOCK CHAMPIONS; an Artistic Souvenir Supplement of the *National Farmer and Stock Grower;* by Philip H. Hale, Editor. 352 pages, with 679 illustrations. 1912. Hale Publishing Co., St. Louis, Mo.

This work is as interesting as a spicy novel and as instructive as a text-book; and the best part of it is, it is fact. Reproduc-

tions right from life of live stock champions of the day; horses, cattle, sheep and swine—the best that has been produced; the *crême de la crême* of the live stock world. Can anything *more* instructive or *more* interesting be imagined than the portrayal of these champions in animated poses, making the pictures strikingly life-like, with a brief but accurate description of each animal beneath the picture, giving the name of the animal, name of the owner and exhibitor, where and when exhibited and the prizes taken? Every veterinarian who learns of this book will want it, and *no veterinarian can afford not to have it.* Because if he attends stock shows it will interest him, and if he is not in a position to attend such shows it will instruct him in the very line in which veterinarians are so deeply interested, and with which they are so closely allied to-day. *The Book of Live Stock Champions* is virtually a live stock show in your own library with nearly seven hundred entries, and all champions; affording its readers a splendid opportunity of becoming connoisseurs in live stock judging, as nothing but the best is exhibited, and they may give as much time to each class as they desire, for which they are under great obligation to Mr. Hale, editor of the *National Farmer and Stock Grower,* who has edited and published the *"Live Stock Champions"* as a souvenir supplement to his paper.

PRINCIPLES OF ECONOMIC ZOOLOGY.

PRINCIPLES OF ECONOMIC ZOOLOGY, by L. S. Daugherty, M.S., Ph.D., Professor of Zoology, State Normal School, Kirksville, Mo., and M. C. Daugherty, Kirksville, Mo. 12mo. of 410 pages, with 301 illustrations. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, $2.00 net. W. B. Saunders Company, Philadelphia, London.

Principles of Economic Zoology is one of the most interesting books that it has been our pleasure to review for some time. From the moment that you begin with the *protozoa* until you finish with the *mammalia*—theories of development, history and theories of evolution—it continues to get more fascinating with each chapter. The illustrations are beautiful, and are in themselves an education in natural history.

The paper used in this work is of a very high quality, the type clear and sharp, and the binding neat and elegant, befitting the character of the book. *Principles of Economic Zoology* should find a place in the library of all scientific men and is essential to the student of structural zoology.

Bibliographic Notes.

Mulford's Veterinary Bulletin for January arrived at the Review office during that month and has been read with a very great amount of pleasure and satisfaction. Pleasure because of the many interesting and helpful articles it contains; satisfaction because of its ethical character. This little bulletin, although published by a drug house, has much to commend it from a scientific standpoint; and the cleanness of its pages merits the emulation of more pretentious journals.

The January, 1913, number seems to be an especially good one. An interesting discussion of the hog cholera problem, editorially, is followed by several articles by prominent members of the veterinary profession. Among others, H. Caulton Reeks, F.R.C.V.S., on "Impaction of the Caecum in the Horse," of unusual interest, and John Reichel, V.M.D., on "Contagious Abortion Bacillus Vaccine." Altogether, it contains quite a goodly number of original articles and case reports, and is a valuable little booklet.

The Journal of the U. S. Cavalry Association for January, 1913, is an especially good number, containing many excellent articles; among others, one by Dr. Gerald E. Griffin, entitled "Fort Keogh Remount Depot."* one by Capt. Edward Davis, 13th Cavalry, on "The New Cavalry Equipment," and several reprinted articles on needs and scarcity of horses, American horses for cavalry, saddle-bred army horses, etc., etc., that make especially interesting reading for veterinarians.

Our Dumb Animals for February reached the office early in the month, with its usual store of good advice and lessons of mercy—and its work is much to be commended.

Other Periodicals Received, are *The Veterinary Journal* (London), *Berliner Tierärztliche Wochenschrift, Deutsche Tierärztliche Wochenschrift, Indian Civil Veterinary Department Memoirs, Agricultural Journal of the Union of South Africa, The Philippine Journal of Science, The American Journal of Clinical Medicine, North-American Journal of Homoeopathy, The Bacterial Therapist, The Farmer's Advocate* (Winnipeg), *The Rider and Driver, Breeder's Gazette, Hoard's Dairyman, The Live Stock Journal* and several bulletins.

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* Published in this issue of the Review, on page 662.

SOCIETY MEETINGS.

NOTES ON THE SEMI-ANNUAL MEETING OF THE MISSOURI VALLEY VETERINARY ASSOCIATION AT KANSAS CITY.

The Missouri Valley Veterinary Association held a three-day meeting in Kansas City, January 21-22-23, which was attended by over 250 practitioners. General interest in the program was sustained throughout the entire meeting. So spirted was the discussion of some of the papers that the literary program was extended into the third day, which had been set aside for the clinic.

Dr. B. F. Kaupp, Chicago, Ill., presented the subject of "Contagious Abortion," and his paper drew out an interesting and very practical discussion.

Dr. S. L. Stewart read a paper on "Equine Meninges and Some Pathological Alterations," and the subject was made intensely interesting by the exhibition of several prepared specimens illustrating the chief points made in the paper. The anatomical problems brought out in the paper and illustrated by the specimens was a very good introduction to the topic which followed, namely, "The Recent Horse Plague" in western Kansas and related parts of adjacent states. This latter subject was to have been presented by Dr. A. Bostrom, of Lincoln, Neb., but as he was unable to attend, the several persons assigned for the discussion of this paper gave the theme an instructive and extended presentation. The general opinion as to the etiology concurred with the forage poisoning theory, there being only a few who advocated the theory of verminous origin. The flagrant violation of professional ethics by many, both resident veterinarians and those who flocked to the scene of possible grafting, from outside, received special attention, and several speakers urged punishment of the offenders.

The session held on the evening of the first day was opened by a letter from Dr. R. W. Ellis, of New York City, explaining his unavoidable absence, and the reading of his paper by the Secretary, entitled "The Trend of Veterinary Practice in Eastern Cities."

The second paper was presented by Dr. F. M. Starr, of

Odessa, Mo., describing some cases of bovine pneumonia, which simulated contagious pleuro-pneumonia. The discussion brought out the probability that the cattle had been affected with the pectoral form of hemorrhagic septicemia. It was made plain that a number present had observed similar cases.

A paper by Dr. A. D. Glover, of La Belle, Mo., on "Purulent Infection of the New-Born," touched the experiences of many and led to a lengthy discussion.

Wednesday morning, January 22, the meeting reconvened with a full attendance, the first paper presented being on "Embryological Operations and Forced Traction in Dystocia of Large Animals" by Dr. J. V. Lacroix, Kansas City. The discussion of this very practical paper was quite general.

Dr. Julius A. Jessen, of Irwin, Iowa, presented a very carefully prepared paper on "The Descent of Animals," which attracted close attention.

Dr. J. Harvey Slater, Richmond, Mo., read a paper on "Tetanus," which was of a practical character, and the extended discussion given to the subject was indicative of a very wide interest in the problem that seems to be ever with us.

"The Surgical Treatment of Bone Spavin" was the title of a paper presented by Dr. R. R Dykstra, of Manhattan, Kan., and which offered some new points in the treatment of this malady and developed the diversity of the opinions held by practitioners, so fully brought out by the extended discussion.

The feature of the afternoon session was a paper illustrated by lantern projection on the "Diagnosis of Hog Cholera," by Dr. J. W. Connaway, of Columbia, Mo. Every member present took a lively interest, as there are new features of the problem developing with each day's experience. The discussion in part centered around the finding of complications, which ofttimes obscure the diagnostic lesions of cholera. The old distinctions between hog cholera and swine plague were in part revived. Another point brought prominently to the fore was the belief by many that the use of virus in the simultaneous method of immunizing against cholera led to the propagation of cholera more widely throughout the States.

Resolutions of endorsement of the pending Army Veterinary Bill were adopted and the Secretary instructed to inform Senator Bristow by wire of the action of the association. Further the members generally agreed to individually send communications to United States Senator Bristow, expressing their personal approval of the bill.

The several case reports occupied the remainder of the afternoon session.

In the evening of the second day about 150 veterinarians sat around the banquet board at the Coates House, and after enjoying a lively visitation, while participating of a splendid repast, terminated the evening's exercises by attention to numerous short addresses by the President, Dr. George R. Young, of Omaha, Neb.; Dr. Joseph Hughes, of Chicago, Ill.; Dr. D. B. Morgan, of Neosho, Mo., and others. Mrs. S. L. Stewart, of Kansas City, responded to a toast to the ladies in a most happy and pleasing manner. The speeches were interspersed by the musical numbers rendered by the Kansas City Veterinary College Glee Club and some lady friends of the local members.

On Thursday morning, January 23, the association convened in the auditorium of the Kansas City Veterinary College, there to complete its literary program, consisting of a paper on "Interstate Inspection of Live Stock," by Dr. T. T. Christian, of Texarkana, Texas. The points in the paper particularly relating to honesty of inspection, and reasonable charges therefor, elicited a spirited discussion and hearty approval.

"A Retrospect of the Results of Tuberculin Testing," by Dr. F. W. Caldwell, St. Joseph, Mo., and the discussion which followed sustained the superiority as well as convenience and economy of time of the intradermal method over all others.

During the several sessions many applications for membership were presented and acted upon, there being received in all about 30 new members.

After the disposition of routine business the literary session was adjourned to participate in the clinic, which took place in the college amphitheatre. This feature of the meeting continued to hold the attention of the members until the shades of night came on, and with all it was generally stated that this had been a record-breaking meeting in volume of work done and in its educational and social features.

MEETING AND SESSION OF THE PERMANENT COMMISSION OF THE INTERNATIONAL CONGRESS OF VETERINARY MEDICINE.*

Friday, the 25th of October, 1912, at Lyon in the Library Hall of the National Veterinary School, at 9 o'clock a. m.

* Translated for publication in the AMERICAN VETERINARY REVIEW by Prof. L. Van Es, North Dakota Agricultural College.

Mr. Faure, the director, receives the members in the convocation hall of the school and bids welcome to the president and to the members, a large number of whom have come in order to assist at the same time in the celebrations of the school.

He thanks them very cordially for the splendid photograph of all the members of the commission, which offering to the Lyon school is exhibited on a table of the hall. At the same time he delivers an official letter expressing the thanks of the teaching corps of the school for this high token of sympathy. Mr. Faure says finally that the commission will find a hall more quiet and appropriate for its work in the library. At the same time he invites the members to a breakfast offered by himself and the professors of the school.

The president thanks Mr. Faure very sincerely for his hospitality and his good care for the commission, after which Mr. Faure withdraws and the commission begins its labors.

Are present: Mr. Lydtin, Germany, president; Mr. Hutyra, Hungary, and Mr. Degive, Belgium, vice-presidents; Mr. de Ratz, Hungary, adjunct secretary; Mr. Happich, Russia; Mr. Hangka, Austria; Mr. Hess, Switzerland; Mr. Theiler, South Africa; Mr. Piot, Egypt; Mr. Perrincito, Italy; Mr. McFadyean, England; Mr. Stockman, England; Mr. Schimmel, Netherlands; Mr. Locusteanu, Roumania; Mr. Barrier, France; Mr. Kjerrulf, Sweden; Mr. Malm, Norway; Mr. Bagg, Denmark, and Mr. de Jong, Netherlands, secretary.

Order of Business.

I. Report of the secretary on the activity of the commission since the meeting at Baden Baden in June, 1911.

II. Resolution on the installation of the permanent secretaryship at the Hague (thirteen countries represented in the commission have approved, eight countries have until now not responded).

III. Resolution on the proposals of the English executive committee:

a. On the date of the London Congress.
b. On the questions to be treated at the London Congress.
c. On the organization of this Congress.

IV. Measures to be taken to obtain the participation of veterinarians, physicians and agronomists of all countries in the London Congress and the aid of the press.

V. Wishes and proposals of the members of the commission.

1. The president, in opening the session, once more thanks

the director of the Lyon school for the hospitality and reads a letter from the Austrian Minister of Agriculture announcing that Mr. Hangka has been delegated to take the place of Mr. Binder. He puts the question if Mr. Hangka would have the right to vote. The assembly responds in the affirmative. After this he reads a letter from the Bulgarian Minister, who excuses the absence of Mr. Tuleff, of Sofia.

2. The photograph of the members, offered to the school of Lyon, has cost about 260 francs, including the frame and the naming of the members upon a metal plate. The president hopes that the members will be so kind as to pay their part of the expense to the secretary. The photographer has added a reduced reproduction for the record. The members who likewise desire such a reproduction should apply to the secretary.

3. The committee of the library exposition of Leipzig in 1914 has invited the commission to organize an excursion to Leipzig on the occasion of this exposition. The president had to answer that this excursion will not be possible on account of the London Congress.

4. The secretary reads the report on the labors of the commission since the session of Baden-Baden in June, 1911. The report is approved and accepted.

5. The president gives the floor to Mr. de Jong to report on the installation of a permanent secretary's office at the Hague. Mr. de Jong relates the correspondence as a result of the resolutions passed at Baden Baden. The members of eight countries represented in the commission have not yet made answer. Of thirteen countries the answer was favorable. The majority thus far approved the project, while a few members have, it would seem, not yet made the desired efforts. Mr. de Jong adds that the remnant from the Congress of the Hague, resulting from an extraordinary contribution of the Netherland Government has been quite diminished after the meeting of Baden Baden, not only by the expenses caused by the Congress of the Hague, but also by the expenses of the commission itself and which are quite important. It would be well to recommend to the Executive Committee of London to bear in mind those actual and future expenses of the commission if the situation remains the same. In spite of this the surplus of the Congress of the Hague will probably be sufficient for the provisional installation of the secretary's office at the Hague.

Mr. de Jong consequently believes that it will be in the interest of the commission to obtain this surplus for the installation of

its secretary's office at the Hague, which aside would have the projection of the Minister of Agriculture of the Netherlands. Not only the congresses of medicine, but also those of pharmacy and hygiene and demography already have their office at the Hague, and it seems a little peculiar that the veterinary congresses, of which the permanent commission is older than that of the congress of medicine, are much behind in this respect.

Mr. de Jong proposes thus to wire to the Netherlands Minister of Agriculture that the commission definitely accepts His Excellency's offer. He has authorized Mr. de Jong to let the permanent commission know that he has always had the intention to be favorable to the installation of the secretary's office at the Hague.

During the discussion a few members excused themselves of not having had the opportunity to state the answer of their Ministers, while a few wish to see the question treated through diplomatic channels, and still others wish to submit it to the London Congress in 1914. But the majority of the members expresses its great obligation toward the Dutch Minister, who thinks so generously regarding the commission.

Messrs. Barrier, Malm, Theiler, Biot, and others wish to accept the secretary's office at the Hague, while Mr. Hess proposes to ask the Dutch Minister of Agriculture to first ask the approval of the other countries, a proposal which is regarded as very importunate by Mr. de Jong.

The president says that paragraph 14 of the by-laws of the congresses of medicine says simply " the office is stationary at the Hague." This decision has been made by the physicians without asking beforehand the approval of the government or competent ministers of their countries. At this time the commission, which is authoritative only, has to see if there are obstacles which oppose themselves to the realization of the provisional resolutions of Baden-Baden. If not, the present assembly can pass a definite resolution, and when the commission wishes to address the Dutch Minister of Agriculture, it can only do so to thank His Excellency very much for his good intentions regarding the permanent commission. The latter has to write in its by-laws: " The commission has a fixed office at the Hague." This, besides, does in no way limit the freedom of action and the independence of the commission.

After some discussion on the organization of the office, the president first puts the proposal of Mr. Hess (Switzerland) to a vote. The latter retires, but wishes that this be recorded in the

minutes. Then the proposal to establish the office at the Hague under the conditions established at Baden-Baden is unanimously accepted.

The president expresses his thanks to the Dutch Minister of Agriculture. The commission sends a message to His Excellency, communicating to him the resolution and expressing to him its gratitude. In the course of the meeting an amiable answer from His Excellency is received.

6. On the proposal of the English members, and after some discussion, the date of the next Congress at London is fixed for the first week in August, 1914 (6 days).

As to the organization, Mr. McFadyean, who with Mr. Stockman had presented a provisional program, says that he borrowed it from the Congress at the Hague, but that he has proposed less general sessions. Many members, among others Messrs. Degive and Barrier, on the contrary, desire more general sessions. After some discussion on the subjects to be treated and on the sections, the organization of the Congress is entrusted to the English executive committee, which will reckon with the desires of the permanent commission, which recommends above all to avoid conflicts between the general sessions and those of the sections. Among the questions which should be treated by the general sessions were named: Tuberculosis, foot and mouth disease, intoxication by animal food-stuffs, sanitary milk control, the causes of abortion, veterinary education, and others. As subjects for the sections were recommended questions of pathology and bacteriology, enzootics, medicine and surgery and the tropical diseases.

Mr. de Jong recalls, besides the questions to be treated remaining over from the Congress of the Hague, and made known that Messrs. Van Es (United States), Lignières (Argentine) and de Blieck (Buitenzorg, Java) have expressed special wishes concerning the Congress.

Of this he makes report to the English members to whom also was forwarded a wish from a veterinarian of the Allgau.

To a question of Mr. Barrier, relating to the budget of the future Congress, Mr. McFadyean gives a very reassuring answer. From three to four thousand pounds sterling are already available, and a still more considerable sum is expected. The Congress finds a good deal of sympathy in England. The official invitations will be made by the Minister of the Exterior of Great Britain. Mr. Barrier recommends to send the invitations early.

The president thanks Messrs. McFadyean and Stockman for

their reports. Concerning the London Congress the formation of National Committees in all countries is recommended and Mr. McFadyean wishes that the members of the commisison would also kindly encourage the attendance of the Congress of London, which will celebrate the semi-centennial of International Congresses. The president remarks that it will be urgent to ask above all for the assistance of the press, including the political press and especially the English one.

Mr. Stockman wishes communication of the names of the secretaries of the national committees as soon as possible.

7. Before the closing of the session Mr. Barrier expresses thanks to the president. It is true that the commission is an institution of great usefulness, but it is also true that especially the president does much work in the interest of the tasks of the commisison and of the congresses. He deserves the homage of all the members for this.

The president thanks Mr. Barrier for those words, emphasizing that all he has been able to accomplish is due to the support of the members and above all to the indefatigable labors of Secretary de Jong. He closes by rendering homage to France and the School of Lyon in consideration of the hospitality and cordial reception, which the permanent commission has met there.

(Signed) DR. LYDTIN, President,

D. A. DE JONG, Secretary.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The twenty-ninth annual meeting of the above association was held at Achtel-Stetter's, Broad street, Newark, Thursday, January 9; President T. E. Smith in the chair and the following members present: Drs. Dickson, McDonough, J. T. Glennon, A. W. Smith, R. E. Mosedale, Lubach, Baldwin, Mitchell, William Herbert Lowe, Conover, George Smith, Bair, Hurley, Jones, Thompson, A. G. Hopper, J. B. Hopper, Charles Magill, Churchill, Lindsay, Paulin, Fredericks, Harrison, Ramsay, J. Payne Lowe, Harker, T. B. Rogers, Belloff, Schlommer and Loblein. Visitors, Dr. McLaughlin, of New York; Dr. Hoskins, of Philadelphia; Dr. Runyon, of Freehold, N. J.

A motion to suspend the roll call was offered and passed.

The minutes of the semi-annual meeting and the two special meetings were read and approved.

One proposition for membership was received, that of Dr. Bruce Blair, of Jersey City. Dr. Blair was later elected to membership.

In his annual address the president recorded the history of the association during the past year and made a number of suggestions. He touched very feelingly upon the death of ex-President T. Earl Budd, of Orange, who succumbed to the dreaded disease anthrax, after posting an animal which had died from the disease. The address was well received by the members present.

President Smith reported on the Army Legislation Bill, and Dr. Hoskins, father of the bill, made an earnest appeal for the members to use every effort for the passage of the bill by the Senate, the House having already passed it unanimously.

The Prosecuting Committee reported that one case of unlawful practice had come to their notice, but that the man had left the state before any action was taken.

Dr. J. Payne Lowe, chairman of the Public Health Committee, reported that the committee was active and made some excellent suggestions toward progress in public health matters.

The Special Legislative Committee presented an extensive report in the form of a rough draft of a bill entitled, "An Act creating a Bureau of Animal Industry in New Jersey."

This bill seeks to form a Bureau of Animal Industry composed of the president and secretary of the State Board of Agriculture, the president of the State Board of Health, and the husbandman of the State Experiment Station, with a veterinarian as the executive head of the bureau. As outlined in the bill, the work of this bureau will be the handling of all diseases of animals.

The association passed a resolution approving of the bill and sent it back to the committee for corrections and finishing, so that it can be presented at the present session of the Legislature.

The resignation of Dr. S. G. Hendren was read and the following resolution was adopted:

"Resolved, That the Veterinary Medical Association of New Jersey accepts with deep regret the resignation of Dr. S. G. Hendren, and the secretary is hereby instructed to place the name of Dr. Hendren on the list of honorary members of the association."

The report of the treasurer, Dr. McDonough, was read and approved by the auditing committee.

The secretary reported that 21 members had been dropped from the rolls during the past year for non-payment of dues. It was reported that Dr. A. Brown, of Heightstown, N. J., was an invalid and a resolution was adopted continuing his name on the roll and remitting his dues.

President Smith, in behalf of the association, presented Dr. T. B. Rogers, president of the association in 1911, with a beautiful gold watch as a mark of the appreciation and esteem in which he is held by the association. Dr. Rogers responded very graciously.

A motion was passed giving the president power to appoint a committee of three to draft suitable resolutions on the deaths of Drs. Budd, Stage and Buhler, which occurred during the past year. President Smith appointed the following committee: Chairman, Dr. W. H. Lowe, and Drs. J. B. Hopper and T. B. Rogers.

Election of officers was then held and all of the officers of the past year re-elected as follows: President, T. E. Smith; 1st Vice-President, J. T. Glennon; 2d Vice-President, J. Payne Lowe; Treasurer, James McDonough; Secretary, E. L. Loblein.

The literary program consisted of two excellent papers.

Dr. J. A. McLaughlin, of New York City, read a very deep original paper entitled "The Outlines of a New Physiology," which left much food for thought.

Dr. James McDonough discussed "The Effect of Hoof Expanders on the Foot."

Both papers were well enjoyed and brought forth excellent discussions.

E. L. LOBLEIN, Secretary.

THE NEBRASKA VETERINARY MEDICAL ASSOCIATION.

A special meeting of the above association was held in the veterinary building at the University Farm, Lincoln, Neb., on December 30 and 31, 1912, for the purpose of discussing various legislative measures.

Particularly the creating of a State Live Stock Sanitary Board and the proposed amendments to the Veterinary Practice Act.

Dr. J. S. Anderson, chairman of the Legislative Committee,

reported that amendments to the Veterinary Practice Act had been drawn up and were ready to be presented to the association for discussion, and which were adopted after considerable discussion when they were submitted. The committee had also been working on a bill to create a Live Stock Sanitary Board.

It was then moved and carried that the Legislative Committee be authorized to act with the committee appointed by the live stock associations as they deem fit, with a view of arriving at some agreement of co-operation in drafting a bill whose provisions should be fair to all concerned.

Meeting adjourned, to meet again the following morning in the same place at 9 o'clock.

On Tuesday morning, December 31, the meeting was called by Dr. J. D. Sprague. Dr. Anderson reported that during the interview which the Legislative Committee had just had with Mr. Crocker, secretary of the Live Stock Committee, it was mutually decided that a bill should be drafted to create a Live Stock Sanitary Board; said board to be composed of four stockmen and one veterinarian, these to be appointed by the Governor, and they to appoint the State Veterinarian, who shall be the executive officer of the board.

After considerable discussion it was decided that the members render all possible support to this bill in the next legislature.

Dr. W. H. Tuck, chairman of the Prosecuting Committee, was then asked to report and replied by asking that Dr. Norden, the secretary of this committee, be asked to render this report, as he had more of the data. Two empirics had been prosecuted, one in Lincoln by the name of Vincent, who was convicted and fined $25 and costs upon being rearrested after having had his bond of $200 forfeited a week previous for non-appearance; the other was Mr. Gregg, at Litchfield, Neb., who was prosecuted and fined $25 and costs in the County Court at Loup City, Neb.

A motion was then made and carried authorizing the committee to collect more contributions to the prosecuting fund from the veterinarians over the state to provide for the continuance of this work.

Association adjourned until the regular meeting in January.

* * *

The annual meeting of this association was held in the veterinary building at the University Farm, Lincoln, Neb., January 14, 1913, which was called to order at 1 o'clock p. m. by the president, Dr. J. D. Sprague.

After the reading of the minutes of the previous meeting by the secretary, Dr. W. H. Tuck, and their approval by the association, Dr. Anderson, as chairman of the Committee on Legislation, was asked to report, in response to which he reported good progress with the Live Stock Sanitary Board Bill and the one providing for amendments to the Veterinary Practice Act, both of which would soon be ready to introduce into the legislature.

This report was made to a most appreciative audience, as every one felt that the committee had worked hard and earnestly in trying to obtain these two important measures, which are so badly needed, and the tact and diplomacy used was most commendable.

Dr. J. A. De Cow, chairman of the Executive Committee, reported on twenty-eight candidates for membership as being properly vouched for, who, on motion, were all unanimously elected members of the association.

After the disposition of various business matters the following officers were elected for the ensuing year:

President, Dr. J. C. Bowman, Tecumseh; Vice-President, Dr. L. P. Carstenson, Columbus; Secretary and Treasurer, Dr. Carl J. Norden, Nebraska City.

Association adjourned.

CARL J. NORDEN, Secretary and Treasurer.

VIRGINIA STATE VETERINARY MEDICAL ASSOCIATION.

The nineteenth annual meeting of the above association was held in Richmond, January 9 and 10, 1913. The meeting was called to order in the spacious parlors of the Jefferson Hotel, at 8 o'clock p. m., by President Ferneyhough, of Burkeville, State Veterinarian. After the usual routine of opening, the association adjourned to await the report of the Board of Censors and other committees.

Upon the recommendation of the Board of Censors five new names were added to the roster. Several instances of unqualified practitioners and other violations were reported, and the whole subject was referred to a committee on resolutions, with a request that they report at the next meeting.

January 10, 1913, President Ferneyhough called the association to order, promptly at 9.30 a. m. After the reading of the

minutes the president, in a few well-chosen words, introduced Hon. Roswell Page, a brother of the distinguished Virginia novelist, who delivered a very excellent address of welcome, which was responded to by Dr. Faville. Dr. W. Horace Hoskins, of Philadelphia, who was present, addressed the meeting in his usual happy style. While the doctor is still a young man, his allusions to the early history of the profession in the United States made some of us feel that time is surely flying.

Dr. W. G. Chrisman, State Veterinarian of North Carolina, gave a very full report of his work in the prevention of hog cholera by the use of anti-hog cholera serum. His work in North Carolina has been eminently successful, but from the discussion of the subject, and the experience as related by the members present, it would seem that the serum supplied by the State of Virginia is not uniformly reliable.

Dr. R. W. Hickman, chief of the Quarantine Division of the Bureau of Animal Industry, read a very interesting paper on the prevention of the introduction of disease through the importation of live stock from foreign countries. Dr. Hickman's paper recited several instances, where surra, rinderpest and Malta fever had been stopped at quarantine through the careful work of the division of which he is chief.

Promptly at 1.30 p. m. the association adjourned to the Palm Room of the Jefferson, where an elegant banquet was served. We had as our guests the Hon. William Hodges Mahn, Governor of the state; Hon. J. Thompson Brown, chairman of the State Live Stock Sanitary Board; Prof. W. D. Saunders, State Dairy Commissioner; Hon. Henry C. Stewart; Dr. George Ben Johnson, of the Virginia Medical College, and Dr. W. Horace Hoskins, of the A. V. M. A. Dr. George C. Faville acted as toastmaster and introduced each of these guests, who responded in the happiest possible vein, and all of their talks were greatly enjoyed. A peculiar fact is that each of these speakers pressed home the lesson of the duty of personal service for the public good. Such influences as are represented by these men are of incalculable benefit to the profession.

After the banquet the election of officers took place and resulted as follows:

President, Dr. R. R. Clark, of Hampton, Virginia.

First Vice-President, Dr. J. S. Meyerhoffer, North River, Va.

Second Vice-President, Dr. H. Bannister, Roanoke, Va.

Secretary and Treasurer, Dr. George C. Faville, North Emporia, Va.

The Committee on Resolutions reported a resolution requesting the Attorney-General of the state to call the attention of the Commissioners of Revenue of the counties to the law regarding the issue of licenses to practice veterinary medicine in this state. A resolution was adopted, urging our senators to do all possible to secure the passage of the Army Bill by the Senate. After the usual votes of thanks to those who had helped to make the meeting such a success, the association adjourned, to meet in semi-annual session at Old Point Comfort, Va., the second Thursday in July.

GEORGE C. FAVILLE, Secretary-Treasurer.

COLORADO VETERINARY MEDICAL ASSOCIATION.

The annual meeting of the above association was called to order by President Woodliffe in Denver, January 23, 1913, with a representative attendance, considering the small numbers in the state.

Dr. Dickey, president of the State Examining Board, made a rather extended report of the efforts of that board to drive out the non-licensed men from the state. It was stated that the results had been uniformly successful without necessity for legal action, except in one or two cases, and these were causing some worry, because of the fact that the men most vitally interested had very prominent political friends backing them. It was suggested that the probability is that in a very short time the cases would be carried to the Supreme Court so that we may know whether or not our law is of value.

The following officers were elected: Dr. A. B. McCapes, president; Dr. R. N. McCarroll, first vice-president; Dr. A. G. Fisk, second vice-president; Dr. I. E. Newsom, secretary-treasurer.

A very interesting program was rendered, an important topic of which was the discussion of the Kansas Horse Disease by Dr. H. Busman, of the Bureau of Animal Industry; Dr. G. H. Glover, of the Colorado Experiment Station, and Dr. C. V. Williams, a practitioner at Lamar, Colo., who had had wide experience in the vaccination of horses at the time of the outbreak in the Arkansas Valley.

All three papers were discussed vigorously, Dr. Busman taking the view of the Bureau, that all consideration pointed to the

cause of the disease as being forage poisoning; whereas Dr. Glover and Dr. Williams were inclined to the belief that forage poisoning did not explain all the phenomena, but that a microorganism was probably at the bottom of the difficulty.

"The Use of Serum in Hog Cholera" was the title of a paper given by Dr. J. F. Meinzer, of La Jara, Colo. Dr. Meinzer reported on something over 1,200 head of hogs to which he had given the "Serum Alone" method, with about 70 per cent. of recoveries. He stated that the disease with which he had been battling shows a chronic form and that in a number of herds the disease had existed for several weeks before treatment had been given. He was very strong in the belief that the "Serum Alone" method, where there was an outbreak in progress, was of advantage over the simultaneous method; however, he took particular pains to keep the sick hogs with the well ones for at least ten days following the injection of the serum.

This subject created a great deal of discussion, as hog cholera has been quite prevalent in the state.

The following resolutions of general interest to the profession were passed:

Resolution No. 1.—Resolved, that the Colorado Veterinary Medical Association is in favor of a federal constitution for the A. V. M. A., whereby state associations have voting representation therein and recommends the appointment of a committee to gather information thereon. Passed.

Resolution No. 2.—That none but graduate veterinary surgeons licensed to practice in the state of Colorado be allowed to conduct tuberculin and mallein tests. Passed.

Resolution No. 3.—Whereas, Only men who are graduates of recognized veterinary colleges are legally entitled to the title of "veterinary surgeon";

And Whereas, There are various positions in the state in which the law specifically provides for the appointment of a veterinary surgeon.

And Whereas, Under the Civil Service Law now in force in this state, the Civil Service Commission will in all probability hold examinations for such positions, be it

Resolved, By the Colorado Veterinary Medical Association in convention assembled, that the State Civil Service Commission be and is hereby requested to rule that in all examinations held by them in which the law provides for a position to be filled by a veterinary surgeon, only graduates of recognized veterinary colleges shall be eligible to take such examinations. Passed.

The next meeting will be held at Fort Collins during the latter part of May or the first of June.

Very truly yours,

I. E. NEWSOM, Secretary-Treasurer.

MAINE VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting of this association was held at the Augusta House, Augusta, January 9, 1913.

The meeting was called to order by President Wescott at 3.30 o'clock. As this was the annual meeting, there was a large attendance.

The minutes of the October meeting were read and approved.

The president gave his report. The reports of secretary and treasurer to be given at the next meeting; executive committee also to report at next meeting.

Dr. Salley gave a report of the clinic, which was held the day after the Skowhegan meeting.

The operation of trephining a horse with chronic nasal gleet (the discharge confined to one side) proved a success; at the end of eighteen days all discharge had ceased.

Election of officers resulted as follows: President of the association, Dr. H. B. F. Jervis, of Houlton; Vice-President, C. W. Purcell, of Biddeford; Secretary, H. B. Westcott, Portland; Treasurer, I. L. Salley, Skowhegan.

Reading of paper by Dr. H. B. Wescott. Subject: "Forage Poison in the Horse," giving the names of it in different states, also symptoms in the different stages of the disease, also giving treatment to a certain extent and preventive treatment. A general discussion by all the members present followed the reading of this paper. Dr. Lynch said they had an outbreak of "forage poison" at Portland, and he thought he could trace it to the mouldy feed, corn, etc.

Dr. H. B. F. Jervis was booked to read a paper at this meeting, but was not prepared.

New Business: The state board of veterinary examiners had a meeting and talked over the veterinary bill; the veterinary bill passed in 1905 was very good, but was repealed in 1907; the proposed new bill is to amend the 1905 bill.

The subject of testing cattle was discussed, the question being "How many readings of temperature should be taken be-

fore infecting the tuberculin?" This subject was discussed by all the members.

Meeting adjourned at 6 o'clock p. m. Banquet served at 7 o'clock p. m., Dr. G. F. Wescott acting as toastmaster. The banquet was a great success, for which credit is due the banquet committee. A good time was reported by all.

Adjournment at 10.15 p. m.

C. W. WATSON, Secretary.

KENTUCKY VETERINARY MEDICAL ASSOCIATION.

The annual meeting of this association was held at the Agriculture Building of the State University, Lexington, Ky., on January 7, 1913.

The meeting was called to order by President F. T. Eiseman at 10.30 o'clock. The regular routine of business of the association was then proceeded with, and the following officers were elected for the coming year: President, C. A. Miller, Louisville, Ky.; First Vice-President, Dr. S. F. Musselman, Cynthiana, Ky.; Second Vice-President, Dr. John T. Shannon, Lexington, Ky.; Secretary and Treasurer, Dr. W. B. Robinson, Mt. Sterling, Ky. Thirty members and four visitors were present at the opening of the meeting.

Dr. Robert Graham, of Experiment Station, Lexington, Ky., gave a practical and very interesting talk on "Hog Cholera, and Its Immunization and Treatment." It was followed by many questions and much discussion. Adjournment for dinner at 1.30 o'clock. The meeting was again called to order by President C. A. Miller, and the applications of new members were then considered. There were five applicants for membership, and four were accepted.

Dr. Robert Graham and Dr. Lewis McElyea, both of Experiment Station, Lexington, Ky., skillfully demonstrated to the association the vaccination of two pigs, weighing 60 pounds each. Each pig received 30 c.c. of serum and 2 c.c. of virus. This was followed by Dr. A. J. Payne's talk on sheep scabies and its eradication. After the discussion on sheep scabies the following papers were read: Dr. Jameson on "Symptomatic Anthrax," discussion by Dr. Jameson; Dr. L. M. Land on "Pneumonia and Its Treatment," discussion by R. P. Moody; Dr. F. T. Eiseman on "Tuberculosis," and discussion by M. A. Purdy.

This association is rapidly becoming stronger, the members binding together their original thoughts and scientific knowledge of veterinary medicine. We hope to become so organized that in the near future we will be able to secure a law that will put our profession on a higher base as a scientific profession and put the empirics to flight.

W. B. ROBINSON, Secretary.

KANSAS VETERINARY MEDICAL ASSOCIATION.

The ninth annual meeting of this association was held in Topeka January 7 and 8.

A good attendance was present and an excellent program was presented, which brought out much instructive discussion, besides the interesting subjects taken up by Drs. Kinsley, Maxwell, Kern, Shetler and other members of the association.

"The Fundamentals of Good State Live Stock Sanitary Control Work," by Dr. M. H. Reynolds, of Minnesota, was much appreciated and discussed. Dr. Reynolds pointed out how a live stock sanitary board, free from political fear or favor, is of inestimable value to the live stock interests of a state.

Resolutions were passed favoring the passage of the Army Veterinary Bill, and the secretary was instructed to send a copy of the resolutions to each member of the association and to the Kansas Delegation at Washington.

A resolution favoring President H. J. Waters, of the Kansas State Agricultural College, was also passed.

The following officers for the coming year were elected: Dr. J. F. Hemphill for president, to succeed Dr. W. N. Hobbs; Dr. C. B. Kern for member of executive board, to fill a vacancy caused by the expiration of Dr. Hemphill's term of office. Dr. J. H. Burt re-elected secretary-treasurer.

Twenty-three new members joined the association. The association members number five-sixths of the graduates in the state, which can be considered a good showing for the state association that began its career nine years ago with a membership of thirteen.

The association adjourned to meet at a time and place to be decided upon later by the Executive Board and notice of which will appear in this publication.

J. H. BURT, Secretary-Treasurer.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary
Alabama Veterinary Med. Ass'n..	August, 1913 ...	Auburn.....	C. A. Cary, Auburn.
Alumni Ass'n, N. Y.-A. V. C.....	April, 1913.....	141 W. 54th St.	J. F. Carey, East Orange, N.J.
American V. M. Ass'n.....	Sept. 1-2-3-4-5 '13.	NewYork, N.Y	C. J. Marshall, Philadelphia.
Arkansas Veterinary Ass'n.....	.....	.....	J. B. Arthur, Russellville.
Ass'n Médécale Veterinare Française "Laval".....	1st and 3d Thur. of each month	Lec.Room, Laval Un'y, Mon.	J. P. A. Houde, Montreal.
B. A. I. Vet. In. A., Chicago.....	2d Fri. ea. mo...	Chicago.....	H. A. Smith, Chicago, Ill.
B. A. I. Vet. In. A., So. Omaha ..	3d Mon. ea. mo.	S.Omaha, Neb	E. J. Jackson, So. Omaha.
California State V. M. Ass'n.....	Dec. 11, 1912.....	San Francisco	John F. McKenna, Fresno.
Central Canada V. Ass'n.....	.....	Ottawa	A. E. James, Ottawa.
Central N. Y. Vet. Med. Ass'n....	June and Nov...	Syracuse	W. B. Switzer, Oswego.
Chicago Veterinary Society.....	2d Tues. ea. mo	Chicago	D. M. Campbell Chicago.
Colorado State V. M. Ass'n.....	Jan., 1913.....	Denver	B. F. Kaupp, Ft. Collins.
Connecticut V. M. Ass'n.....	Feb. 4, 1913.....	Hartford	B. K. Dow, Willimantic.
Delaware State Vet. Society.....	Jan.Apl.Jy.Oct.	Wilmington ..	A. S. Houchin, Newark, Del.
Essex Co.(N. J.) V. M. A.....	3d Mon. ea. mo.	Newark, N. J.	J. F. Carey, East Orange, N.J.
Genesee Valley V. M. Ass'n.....	.....	.....	J. H. Taylor, Henrietta.
Georgia State V. M. A.....	.....	Atlanta.....	P. F. Bahnsen, Americus.
V. M. A. of Geo. Wash. Un'y.....	2d Sat. ea. mo..	Wash., D. C..	A. T. Ayers.
Hamilton Co. (Ohio) V. A.....	.....	.....	Louis P. Cook, Cincinnati.
Idaho Ass'n of Vet. Graduates....	.....	Boise.....	G. E. Noble, Boise.
Illinois State V. M. Ass'n.....	Dec. 5-6, 1912...	Chicago	L. A. Merillat, Chicago.
Indiana Veterinary Association...	Jan. 15-16, 1913..	Indianapolis ..	A. F. Nelson, Lebanon.
Iowa Veterinary Ass'n.....	Nov., 12-13-14 '12	Ames.....	C. H. Stange, Ames.
Kansas State V. M. Ass'n...	January 7-8, 1913	Topeka.	J. H. Burt, Manhattan.
Kentucky V. M. Ass'n.....	Oct. & Feb.ea.yr.	Lexington	Robert Graham, Lexington.
Keystone V. M. Ass'n.....	.....	.....	E. H. Yunker, Phila.
Lake Erie V. M. Association.....	Oct 8-12, 1912...	Lorain, O.....	Phil. H. Fulstow, Norwalk, O
Louisiana State V. M. Ass'n.....	.....	.....	E. P. Flower, Baton Rouge.
Maine Vet. Med. Ass'n	Jan., 1913.....	Augusta	C. W. Watson, Brunswick.
Maryland State Vet. Society.....	.....	Baltimore.....	H. H. Counselman, Sec'y.
Massachusetts Vet. Ass'n.....	4th Wed. ea. mo.	Young'sBost'n	J. H. Seale, Salem.
Michigan State V. M. Ass'n.....	Feb. 4-5, 1913...	Lansing	W. A. Ewalt, Mt Clemens.
Minnesota State V. M. Ass'n.....	July 10-11, 1912.	Minneapolis...	G. Ed. Leech, Winona.
Mississippi State V. M. Ass'n....	.....	.....	Wm. P. Ferguson, Grenada.
Missouri Valley V. Ass'n.....	Jan. 21-22-23, '13.	Kansas City..	Hal. C. Simpson, Denison, Ia.
Missouri Vet. Med. Ass'n	July, 1913.....	Kirksville	S. Stewart, Kansas City.
Montana State V. M. A.....	Jan. 1913.....	Bozeman	A. D. Knowles, Livingston.
Nebraska V. M. Ass'n.....	January, 1912....	Lincoln.....	W. H. Tuck, Weeping Water.
New York S. V. M. Soc'y.....	1st wk.Sept.,1913	New York. ..	H. J. Milks, Ithaca, N. Y.
North Carolina V. M. Ass'n.....	June, 1913.....	Salisbury.. ...	M. J. Ragland, Salisbury.
North Dakota V. M. Ass'n.....	Jan., 22-23, 1913.	Fargo.....	C.H.Babcock, New Rockford
North-Western Ohio V. M. A.....	Feb. and Nov...	Lima.	A. J. Kline, Wauseon.
Ohio State V. M. Ass'n.....	Jan. 8-9, 1913.....	Columbus.....	Reuben Hilty, Toledo.
Ohio Soc. of Comparative Med..	Annually	Up'r Sandusky	F. F. Sheets, Van Wert, Ohio.
Ohio Valley Vet. Med. Ass'n.....	.....	.....	J. C. Howard, Sullivan.
Oklahoma V. M. Ass'n.....	Dec. 14-15, 1911.	Okla. City....	C. E. Steel, Oklahoma City.
Ontario Vet. Ass'n.....	April, 1912.....	Toronto	C. H. Sweetapple, Toronto.
Pennsylvania State V. M. A.....	Jan. 21-22, 1913..	Harrisburg ...	John Reichel, Glenolden.
Philippine V. M. A.....	Call of President	Manila.....	David C. Kretzer, Manila.
Portland Vet. Med. Ass'n.....	4th Tues. ea. mo.	Portland, Ore.	Sam. B. Foster, Portland, Ore
Province of Quebec V. M. A.....	.....	Mon. and Que.	Gustave Boyer, Rigaud, P. Q.
Rhode Island V. M. Ass'n.....	Jan. and June..	Providence ...	J. S. Pollard, Providence.
South Carolina Ass'n of Veter'ns	.....	.....	Clarence E. Smith, Greenville
So. Illinois V. M. and Surg. A....	Jan. 2-3, 1912...	Centralia	F. Hockman, Iola.
St. Louis Soc. of Vet. Inspectors.	1st Wed. fol. the 2d Sun. ea. mo.	St. Louis.....	Wm. T. Conway, St. Louis, Mo
Schuylkill Valley V. M. A.....	Dec. 18, 1912....	Reading	W. G. Huyett, Wernersville.
Soc. Vet. Alumni Univ. Penn.....	.....	Philadelphia..	B.T. Woodward, Wash'n, D.C
South Dakota V. M. A.....	July 8-9, 1913....	Mitchell.....	S. W. Allen, Watertown.
Southern Auxiliary of California State V. M Ass'n.....	Jan.Apl.Jy.Oct.	Los Angeles..	J. A. Dell, Los Angeles.
So. St. Joseph Ass'n of Vet. Insp..	4th Tues. ea. mo.	407 Ill. Ave....	H. R. Collins, So. St. Joseph.
Tennessee Vet. Med. Ass'n.....	.....	.....	A.C. Topmiller, Murfreesboro
Texas V. M. Ass'n.....	Mar. 18 19, 1912..	Fort Worth...	R. P. Marsteller, College Sta.
Twin City V. M. Ass'n.....	2d Thu. ea. mo .	St.P.-Minneap	S. H. Ward, St. Paul, Minn.
Utah Vet. Med. Ass'n.....	Mar., 1912	Logan	A. J. Webb, Layton.
Vermont Vet. Med. Ass'n	.....	....	G. T. Stevenson, Burlington.
Veterinary Ass'n of Alberta.....	.....	.....	C. H. H. Sweetapple, For. Saskatchewan, Alta., Can.
Vet. Ass'n Dist. of Columbia.....	3d Wed. ea. mo..	514—9th St., N. W.....	M. Page Smith, Wash., D.C.
Vet. Ass'n of Manitoba.....	Midsummer Fair	Winnipeg.....	F. Torrance, Winnipeg.
Vet. Med. Ass'n of N. J.....	Jan., 1913	Jersey City...	E. L. Loblein, New Brunswick
V. M. Ass'n, New York City.....	1st Wed. ea. mo.	141 W. 54th St.	R. S. MacKellar, N. Y. City
Veterinary Practitioners' Club....	Monthly.....	Jersey City ...	A. F. Mount, Jersey City.
Virginia State V. M. Ass'n	July 10, 1913.....	Old Pt. Comf't	Geo. C. Faville, No. Emporia
Washington State Col. V. M. A ..	1st & 3d Fri. Eve.	Pullman.....	R. J. Donohue, Pullman.
Washington State V. M. A.....	Jan. 9-10, 1913...	Wenatchee....	Carl Cozier, Bellingham
Western Penn. V. M. Ass'n.....	3d Thurs. ea. mo.	Pittsburgh....	Benjamin Gunner, Sewickley
Wisconsin Soc. Vet. Grad	July, 1912.....	Janesville.....	J. P. West, Madison.
York Co. (Pa.) V. M. A...	June 4, 1912....	York.....	E. S. Bausticker. York. Pa.

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A SUCCESSFUL DIGESTIVE TONIC is found in the preparation known commercially as "Red Ball Brand Stock Food," which is a vegetable tonic sold to veterinarians in bulk, and dispensed by them in powders. This preparation (the formula of which will be sent to veterinarians on application), is most satisfactory; as it is a splendid appetizer and can be dispensed by the veterinarian with a wide margin of profit. See page 28. Mention REVIEW in writing.

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